Doc's Blog

2018

Richard J. Holliday, DVM
www.dochollidaysblog.com

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

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Mineralization of Baby Calves

January 1, 2018

I recently viewed a research paper entitled: "Mineralization in newborn calves contributes to health, improve the antioxidant system and reduces bacterial infections." The abstract is available at http://www.sciencedirect.com/science/article/pii/S0882401017315164

This study evaluated the benefits of an intramuscular mineral supplementation on the health of dairy calves. Ten calves were divided into two groups — a control group and a test group. On days 2 and 14 post-birth, the 5 animals in the test group were injected with 3 ml of a solution containing selenium, copper, potassium, magnesium and phosphorus. Blood was collected from all animals on days 2, 10, 20 and 30 of life in order to analyze the antioxidant enzymes that affect the immune system.

According to the researchers, mineral supplementation presented many beneficial effects including: an increase in the activity of antioxidant enzymes, improvement of immunity, lowered mortality, less incidence of diarrhea and anemia, and less need for the use of antibiotics.

I thought this was an interesting study, especially since it confirms what I have seen over the years in calves born to properly mineralized dams. The study would have been better if it had compared blood levels of calves from highly mineralized dams to those on a less than adequate diet. I hope no one uses this study to begin marketing trace mineral injection as a treatment for mineral deficiencies.

As Dr. Wm Albrecht pointed out decades ago, it takes healthy soil to grow the healthy plants necessary for healthy animals and humans. It would be accurate to replace the word "healthy" with the words "highly mineralized."

Unfortunately, confinement of animals and soil depletion necessitate some sort of supplementation of minerals. Thus, feeding "ground up rocks" is a

standard practice until soils and plants can become more mineralized. Some livestock owners feed a 'one-bag-fits-all' mineral mix. The smarter ones provide a variety of minerals so the animals can use their innate nutritional wisdom to balance their individual mineral needs.

Minerals & Spark Plugs—Team Players

January 10, 2018

I have often been accused of having a one-track mind with regard to feeding minerals, since I usually recommend feeding cafeteria-style minerals as a vital element in the treatment of most herd health or nutrition problems.

There are several reasons for this:

Feeds are less mineralized today because of soil depletion and the adverse effects of commonly used herbicides.

Confinement of livestock in CAFO's restricts the exercise of an animal's innate nutritional wisdom to pick what it needs — if given the choice.

It is easy to dump excess minerals into a ration or a TMR, but extremely difficult to attain a suitable balance for each individual animal.

Cafeteria-style mineral feeding adjusts for all three of these situations.

Consider this trace minerals are an intrinsic part of the enzymes that modulate most metabolic processes. Thus, trace minerals can be likened to spark plugs that modulate the function of gasoline motors. If some spark plugs are missing or out of time the engine will not operate efficiently or not run at all.

Trace minerals, like spark plugs, are team players — they all must be working together to be effective.

Walk the Farm

March 15, 2018

A presentation at a recent Dairy Conference was entitled, “Walk The Farm If You Want to Know the Truth.” The speaker cited his experiences as manager of a large, up-scale, 14 floor hotel. Starting early each morning he would walk all of the halls, checking rooms, lounge areas, kitchen, restaurant, and even bookkeeping entries. He would then confer with the responsible staff and remedy any problems He did this three times every day. He said as he did this problems diminished remarkably.

His point was, whether managing a hotel or a dairy, if you want to know what’s really going on, you need to have an eyes-on presence in every key area — several times a day. The information he gets from personal observation is more valuable than verbal or written reports from subordinates.

For a dairyman, I think eye-balling the cows is a must. My friend and former colleague, Dr. Bob Scott, often said, “The most valuable time a dairyman spends on his farm is when he is leaning on a fence looking at his cows.” I agree.

It”s not only about being on-site and looking around — the very presence and subliminal mental input of the manager adds another element to the equation of success that makes the whole operation more cohesive, more productive, and more profitable. As Dr. Marvin Cain, DVM, so succinctly put it, “Thoughts Are Things”.

Marcus Porcius Cato
234-149 BC

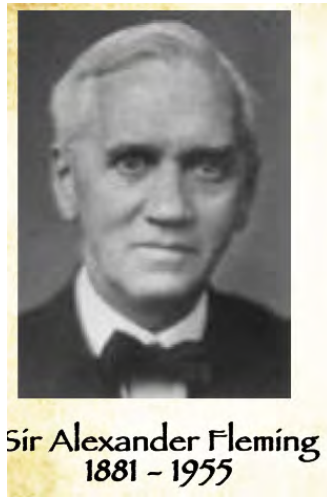
In 160 BC an old Roman, Cato the Elder, wrote a treatise on agriculure titled 'De Re Agri Cola.” He wrote: “The master’s eye doth fat the ox, his foot doth fat the ground”. I interpret this to mean that in order to have healthy and productive soils, crops, and animals, the Master must be personally involved in caring for both. Walk the Farm!

Antibiotics — Good or Bad?

March 21, 2018

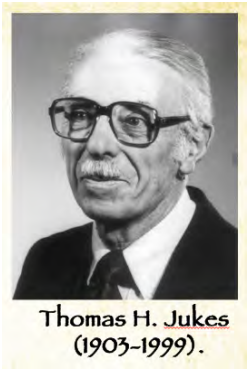
I had a phone call from a fellow with a question about injecting his horse with antibiotics. His Vet had diagnosed a case of Strangles (Streptococcus equi) and recommended a course of antibiotic treatment. The owner wanted to know if that would upset his plans to be organic. I think he was concerned that using antibiotics would violate some basic precept of holistic thought. I assured him it would be a prudent thing to do.

I think antibiotics are a good and useful technology. Since Alexander Fleming's discovery of penicillin in 1927 it has saved many thousands, perhaps millions, of lives. Antibiotics, in and of themselves, are not bad. The problems we have with them is misuse. Fleming warned, early on, that if penicillin was used at too low a dose or for too short of a time it would lead to antibiotic resistant bacteria. We ignored his advice.



Sir Alexander Fleming
1881 – 1955

In 1947, a hospital in London experienced an outbreak of staph infections that did not respond to penicillin. By 1953, the same resistant bug sparked an epidemic in Australia. In 1955 it crossed to the United States, infecting more than 5,000 mothers who had given birth in hospitals near Seattle –and their newborns too.



Thomas H. Jukes
(1903-1999).

In 1948 Thomas Jukes, a poultry nutritionist at Lederle Laboratories, fed a few ounces of the left over growth medium from the production of the newly discovered broad-spectrum antibiotic tetracycline or aureomycin to a group of chicks. The results in increased growth rates were amazing as were the short-term health benefits.

Jukes shared his results with some colleagues and the practice of feeding low level of antibiotics to livestock spread like wildfire. This enabled the start of the CAFO industry and was the beginning of the lethal game of leapfrog that organisms and antibiotics have engaged in ever since..

The Population Bomb

March 29, 2018

I had to chuckle when I recently read about Paul Ehrlich's new book - "The Population Bomb Revisited"- in which he predicts pretty much the same doomsday message he espoused in his original 1969 book, "The Population Bomb." Both books forsee a shattering collapse of civilization to be a near certainty in the next few decades.

For me, his reputation is somewhat tarnished by the fact that most of what he predicted 50 years ago has not come to pass — but some of it has. Back then he predicted mass starvation caused by rampant population growth. That hasn't happened — yet — but is happening. There has been a tremendous population increase in the last 50 years and there are parts of the world suffering from famine - mostly caused by faulty global distribution systems and not so much by failure to produce enough food. .

His new book adds the problems of our continuing destruction of natural resources and the contamination of the planet's farm land by products of Big-Pharma. Ehrlich wrote that the poisoning of our food may be more damaging than climate change. He also pointed out that chemical contamination has caused sperm counts to plummet world wide — which may contribute to population decline in the long run.

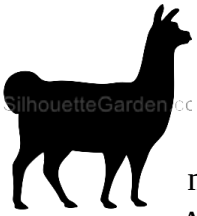
I started out to write this as a criticism of Ehrlich's lack of accuracy in his predictions — but I was wrong. Stick to your guns, Paul, the only mistake you made was in estimating the length of the time-line.

Minerals for Multiple Species

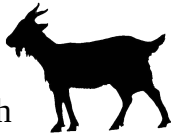
April 6, 2018

A fellow who grazes several species together,— cattle, horses, sheep, goats, llama, and swine — recently asked me if a cafeteria-style mineral feeding program was feasible for that many different species. I told him, as far a the minerals themselves were concerned, there was no problem. All those species do well on a full array, self-select mineral program.

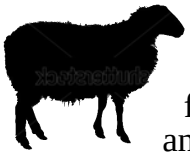
That being said, I told him I wasn't sure how the delivery system would work. Some things to consider.



Species compatibility. Animals tend to congregate at mineral feeders. More aggressive species (or individual animals) may interfere with other animals having full access to the minerals.

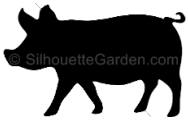


A basic feeder may not be easily accessible to all species, thus requiring other feeders of different design.



Hogs tend messy eaters. Other species may not wish to eat at the same table.

I would appreciate feed back from anyone who tries this or anyone who already does this.



Animal Intelligence

April 16, 2018

There currently seems to be a lot of interest in animal intelligence or consciousness. Recently, a friend asked me which animal I thought was the smartest. My first thought was primates and then possibly elephants — but, since my only experience was with domestic animals, I opined that the pig was the smartest.

I am not an expert on animal behavior nor do I know how to scientifically rate their intelligence. I'm sure there are many ways to do this. I suppose one could compare their activities and reactions to humans. But, if we did that it would only be fair to examine to rate our ability to function in a pig's world!

Then too, we could rate animal intelligence on how well they integrated with their environment and society — finding food, reproduction, social structure etc, but that would be highly subjective.

Their ability to communicate within their species, as well as with other species(including humans) would be an important factor.

Having said all that, I don't know why I chose pigs. Pigs have an undeserved reputation as being a dirty animal (mostly when raised in close confinement). Pigs do not sweat and a cool mud-bath on a warm day protects them from dehydration and sunburn. Pigs are cute, alert and exhibit many different personalities. I believe that a face-to-face, look-me-in-the-eye involvement with any animal will provide insights into an animal's basic persona. Try it sometime.

Going back to my choice of the pig as the most intelligent domestic animal, consider this: Given the choice, most animals will select feedstuffs and minerals conducive to good health — but, given a choice, many humans will choose to eat junk food or Franken-food.

Given the opportunity, a pig will usually not soil its sleeping or eating areas with feces — but, given the opportunity, humans poison their fields and food with toxic chemicals — all for the profit of Big-Pharma.

It begs the question; "Are humans as smart as pigs?"p

Iodine deficiency in Goats

April 25, 2018

A goat owner said to me: "This kidding season, the newborn buck kids were unusually large while the doe kids were unusually small. I have heard that this could be caused by a deficiency of iodine. Have you ever heard of anything like that?" I had not.

But, I did some internet browsing and checked a couple of books on goat medicine, and could find nothing on sex related birth size disparity in newborn kids.

After reporting this to the goad keeper, she sent me a reprint entitled, "RECORDS OF NUTRITIONAL FACTORS IN FERTILITY OF GOATS" — posted to my blog site as http://www.dochollidaysblog.com/article-index/records-of-nutritional.html

This paper summarized over a decade of fertility records in an Australian goat herd from the late 1960s and 1970s. The herd experienced the same size disparity in newborn buck and doe kids as stated in the original question.

The problems were apparently associated with feeding clover or alfalfa hay along with a mineral supplement containing a generous limestone base. It was though the phyto-estrogens in the legume hay (containing goitrogens which depress the production of the hormone thyroxin) along with the high calcium content of the hay and mineral limited the uptake of iodine by the thyroid gland.

The elimination of clover hay and ground limestone from the diet resulted in a remarkable improvement in fertility but the sex ratios still favored males 1.4 to 1. This ratio was improved when iodized salt and copper-cobalt licks were offered.

Classic signs of Iodine deficiency in newborn goats are being born dead, abnormal hair coat, and enlarged thyroid glands, located in the throat area — goiter. Since this lady's goats showed none of these signs, I doubt if an iodine deficiency was involved.

Some folks recommend giving oral doses of Lugol's iodine as a supplement. I think this is a bad idea. It is difficult to know the exact amount needed by individual animals. Force feeding could lead to an excess of iodine, which can also cause thyroid gland problems.

If you suspect your animals are low on iodine and need a supplement, you could

provide a free - choice source of iodized salt AND a free-choice source of regular white salt. This allows animals to match their individual needs without over-loading them.

In the last analysis, the best plan is to provide a full-course, cafeteria-style mineral feeding program.

Cattle Masscre in New Zealand

May 30, 2018

I see where New Zealand is planning to kill 150,000 cows in an attempt to eradicate *Mycoplasma bovis.* This bacteria can cause cows to develop mastitis, pneumonia, arthritis — all of which result in production losses. Of the 39 herds known to be infected, they plan to slaughter some of the cows for human consumption, exterminate the rest and bury them on the farm. The estimated cost is over 600 million USD.

I think this is a bad idea for several reasons. If there is a possibility of other domestic or feral animals also harboring the disease, there is always the possibility of reinfection from these sources. In the US. Brucellosis and Tuberculosis have been eradicated in most domestic herds but are still endemic in feral bison, elk and deer.

I also wonder if it is a good idea to arbitrarily kill the exposed, unaffected animals in the infected herds. It seems to me, the fact some animals in the herd are not affected indicates a degree of natural immunity to the disease that would be beneficial to preserve.

In the last analysis, it often is not a bacteria that causes a problem but an impaired immune system. If New Zealand cows are not managed any better than US cows they, too, are probably under a lot of stress, force fed too much protein and suffer from grossly unbalanced minerals in their diet. An animal with an impaired immune system is more susceptible to any germ that comes along — if you eradicate one germ another will often take its place.

In 1961 the USDA mandated a Hog Cholera eradication program which successfully resulted in the US being declared free of Hog Cholera in 1978. This was hailed as a great success. Unfortunately, it wasn't long before other, heretofore almost unknown, virus diseases of swine

such as pseudo-rabies began to cost the swine industry almost as many dollars as had Hog Cholera before eradication. This is a good example of the way nature uses germs as 'censors of nature' to eliminate substandard individuals.

Imprint Training of Foals

June 29, 2015

In a conversation with an equestrienne friend, I asked i she had ever read any books written by Robert M. Miller, DVM — she had not. She also was not familiar with the concept of imprint training of foals. I guess she was mostly focused on her horse' performance rather than early training of foals.

Dr. Miller wears many hats — veterinarian, equine behaviorist, author, and cartoonist. My first exposure to his work was his whimsical cartoons on veterinary life published in Vet magazines. (one of which is displayed below).

He is best known for his pioneer work in the concept of

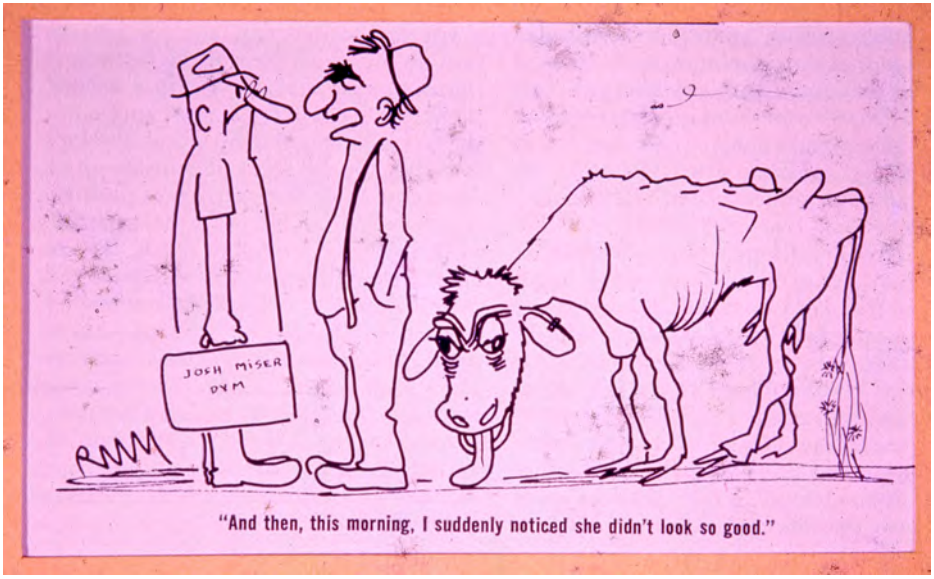
imprinting foals. Early in his practice, Dr. Miller observed how dangerous it was — to vets and horses alike — when adult unbroken horses were first handled for treatment. He developed a protocol of handling foals at birth to imprint an acceptance of human contact in the newborn foals. The lessons learned in the first few days of life persists to adult and makes the grown horses comfortable around humans and safer to train and treat if necessary.

The process is relatively simple. The newborn is touched everyplace from ears to including feet and legs. The foal may be haltered and taught to lead. Feet may be picked up and examined, mimicking future activities. The goal is to get the youngsters used to all the handling they will experience as adults. Horses have exceptional memories and will remember early lessons for life.

Imprinting occurs in most species. Ducklings hatched by a chicken will imprint on the hen as their Mom and follow her around. — a strange sight to see a line of duckling following a chicken.

I don't know of anyone deliberated imprinting dairy caves but raising calves in individual hutches is a close second as it allows the animals to bond with their human caretakers . It does, however, lacks the actual physical touching associated with imprinting.

Dr. Miller has written several books on this subject and there is a lot of information available on the internet.



Trouble Shooting Mineral Deficiencies

July 6, 2018

I occasionally get phone calls something like this, “Hey, Doc. My horses have. XYZ , what mineral should I be feeding for that?” Further conversation usually reveals they are being fed a bunch of different supplements — some force fed in the ration and some fed free-choice.

It is not usually possible to prescribe appropriate minerals just on the basis of symptoms, but there are situations when symptoms or signs do point to a certain mineral deficiency. For example, if the normally black hair coat of a cow is tinged with red it almost always signifies a copper deficiency. Hoof and hair problems may be associated with deficiencies of zinc and copper. Then too, certain environmental conditions influence consumption of certain minerals — some animals take more sulfur in the spring and fall when building new hair. Cattle on lush spring growth pasture usually need more magnesium.

When encountering questions similar to the one above—and knowing that an accurate diagnosis is based on good information—I immediately start asking questions.

1. What are you currently feeding? I am often amazed at the number of supplement some folks give their animals, I suspect Sometime a bunch of different supplements can cause problems with mineral interference. What I am looking for here, is any obvious incompatibilities or gross over feeding, Resulting in metabolic deficiencies even with adequate minerals.

2. Have you tested the water for livestock suitability and especially for nitrates?
3. Do you provide separate sources of calcium and phosphorus?

4. Do you have a separate source of plain white salt available?
5. I usually ask the owner or caretaker, "What do you think is the problem?" Since I am sitting at a desk hundreds of miles away and they are right next to the animals, I believe their observation and impressions should be factored into the decision mix.

Answers to the above questions will usually identify some things to be changed or improved. Many times, that involves the removal of some of the duplicated supplements and I always recommend providing a full-array, free choice mineral feeding program.

Bumble Bees Can't Fly

July 17, 2018

When I was a youngster there was some research making the rounds that said; "Bumble-bees can't fly." I guess some budding aerodynamic scientists had tried to compute the weight/lift ratios for these big bees and come to the conclusion that, mathematically, "bumble-bees can't fly."

While the report was probably issued 'tongue-in-cheek' it was good for some chuckles as it was obvious bumble-bees were still flying. The phrase has stuck with me over the years and even today, when I see some research that defies common sense, I say to myself; "Yeah, right! and Bumble-bees can't fly either."

Our society seems really enamored with science. If we read "Laboratory tests show..." or "University research proves ... " or "Scientists claim..." — most people believe it. I don't!

For any research to have credibility with me, I have to know, at a minimum, the credentials of the researcher and, most important, who paid the bill. It is also interesting to know where the person worked before and after the research was published. A lot of research today reflects the bias of the

author and some is down-right fraudulent. Proof of impartiality is hard to find.

Consider the ongoing controversy over the safety of Glyphosate. There is a multitude of peer reviewed studies on both sides of the issue. Which is right? How does one decide? Finding out who funded the studies would give us some clues.

At some point we need to invoke common sense or, better yet, the *Precautionary Principle* which implies that there is a social responsibility to protect the public from exposure to harm, when scientific investigation has found a plausible risk.

In conclusion, when you encounter outlandish statements from Big-Ag or Big-Pharma, join me in saying; "Yeah, right! and Bumble-bees can't fly either."

An Environmental Disaster

August 22 ,2018

A recent report from Wisconsin indicates 54 Wisconsin dairy farms sold out in June (2018), bringing the yearly total to 338. Although the report did not specify, it seems safe to believe it is small, family-farm type dairies being dispersed.

It's sad to see the demise of the small dairy farm Back in the day, small dairies of 40 to 60 cows were the backbone of the industry. One family could grow and harvest crops, tend the cattle, and do the milking. They were an almost perfect example of a cycle of nature, wherein crops were fed to animals and the manure recycled to the land to grow more crops. Those small farms had little environmental impact.

After World War II everything changed. That's when war-time munition plants began switching to agricultural products — NPK fertilizers, and other highly toxic fertilizers, herbicides, and pesticides. Feeding antibiotics allowed the assembly of large Concentrated Animal Feeding Operations (CAFO's) to gain "efficiency of scale". To keep up with the post-war boom economy, dairy farmers were advised to, "Get big, or get out" — starting a trend that has resulted in the rise of huge mega-dairy operations containing thousands of cows.

As an example of the ill effects of mega dairies, consider the plight of Lost Valley Farm, the second largest fairy in Oregon.

Started in the spring of 2017, it is owned by Greg te Velde, and funded by Rabobank, a Dutch agriculture lender.

From the start, te Velde failed to conform to regulations and was cited for improper waste management practices resulting in contamination of adjacent groundwater and nearby wells. His waste management permit was revoked and he was given 60 days to remove 13,000 cows and 75-acre feet (approximately 24.4 million gallons), of manure and wastewater from his lagoons. Earlier, te Velde agreed to disperse his cattle, but one day before the sale he filed for bankruptcy effectively putting everything on hold. The dairy is now for sale priced at $95 million.

Te Velde owns two other failing dairies in California, and is facing foreclosure from Rabobank. Te Velde is currently receiving treatment at a drug and alcohol rehab clinic. It was not specified if he entered the clinic before or after this disaster.

Bottom line: Any assembly of a mega-number of animals in one area is an environmental disaster waiting to happen. The profitability of mega-livestock operations depends on raping the environment. When forced to pay the damages, bankruptcy results.

For more information, check out these links:
https://www.dairyherd.com/article/oregon-mega-dairy-loses-waste-management-permit?
https://www.dairyherd.com/article/wisconsin-loses-another-54-dairy-farms-june?

Eat Lab-grown Meat or Starve

September 8, 2018

I read a recent report from the Adam Smith Institute, a think tank in the UK, that opined if we did not switch to lab-grown meat the world would face a massive food crisis. It seemed to me, many of the claims were questionable — perhaps even frivolous.

Here are some of the claims along with my comments:

- Lab-grown meat (LGM) would need less land for farming. If lab-grown meat became the norm, 99 per cent less land could be used thus releasing millions of acres of pasture land for other uses. The source of this figure is not given.
- LGM would give the world access to a low cost, high protein diet, the cost of a lab-grown burger pegged at about $10.50. Undoubtedly, it will continue to get cheaper but is still out of reach for people in many countries.
- LGM could help solve the housing crisis by freeing up land currently used by farmers! I don't know where this came from. I can[t imagine how removing some grazing cattle from marginal pastures could free up land someplace for a person to build a house!
- Beef takes a hectare (2.47 acres) to feed one person whereas nineteen people are fed per hectare of rice produced. They did not specify the origin of these figures , nor did they indicate how many people could be fed on a hectare of LGM's.
- As much as 96 per cent of agricultural green-house gas emissions could be cut by switching to LGM — taking a further step towards tackling climate change. It sounds good but in reality most of the gas emissions are associated with mega-farms - CAFO's - and not from pastured, grass-fed beef.
- The looming antibiotic resistance crisis could be prevented by cultured meats which do not use antibiotics. Antibiotic resistance started way before livestock were routinely fed antibiotics. Fleming discovered penicillin in 1928—he predicted bacteria would develop resistance if the antibiotic was not used at high enough levels or for too short a time. There was an outbreak of penicillin resistant staph in London in 1947. It spread to Australia in 1953. In 1955 it crossed to

the US, affecting over 5000 mothers and children in a birthing hospital in Seattle. The new broad-spectrum antibiotic - aureomycin — was first fed to a tiny group of chickens in 1948, which practice gradually escalated into today's wide-spread feeding of antibiotics to livestock. Curtailing antibiotic use in animals may alleviate, but will not eliminate, the problem of antibiotic resistance.

All these claims predict great environmental damage from the rearing and slaughter of animals, but do not address the environmental impact from lab-grown meat — surely there is some. I wonder what is the down-side of LGM's?

Learn more: https://www.thesun.co.uk/news/7135261/meat-should-be-grown-in-labs-by-scientists-or-the-world-faces-a-massive-food-crisis-report-says

Am I a Luddite?

November 1, 2018

I was recently accused of being a Luddite. I looked it up and found that the original Luddites were a group of radical English textile workers. During the early 1800s they protested by destroying new weaving machinery that was replacing them as weavers. After five years, the region-wide rebellion was quelled by military force in 1816. Today the term Luddite has come to mean anyone opposed to industrialisation, automation, computerisation, or new technologies in general

I guess I have to admit it, I am a Luddite in some ways at least — but not in all areas.

For example, I am not a Luddite in the areas of electronics and communications. To be able to have a real-time video conference with friends and family almost anyplace in the world is a boon to mankind that overshadows many of the negatives. The ability to have the knowledge of the world at our fingertips via the internet is akin to a miracle.

I am not a Luddite when it comes to the advances in travel—automobile engines operate cleaner—tires are safer and last longer. While it took the pioneers months to travel in a wagon-trains from St. Joseph, Missouri to Oregon in the mid 1800s, we can now make the journey in an automobile in a few days or mere hours in a jetliner.

I am definitely a Luddite when encountering many of the facets of today's so-called conventional agricultural technology. I am encouraged by the revival of holistic

farming but alarmed by the pervasiveness of GMO technology and the associated herbicides. I believe the keyword here is 'irreversibility'. It is a slippery slope like a ski-slope with a swamp full of alligators at the bottom. Once you are on it there's no turning back.

Today, it is almost impossible to buy food that is not contaminated with GMO's, glyphosate, and myriads of other toxic agricultural chemicals. These substances do not just go away. Even if we stopped using them today, it would be decades, and probably generations, before they are completely cleansed from our soils and crops.

Consider this quote from Dr. Don M. Huber, Professor Emeritus, Purdue University. "Future historians may well look back and write about our time, not about how many pounds of pesticide we did or did not apply; but about how willing we are to sacrifice our children and jeopardize future generations with this massive experiment we call genetic engineering that is based on false promises and flawed science, just to benefit the 'bottom line' of a commercial enterprise."

Drying-Off Dairy Cows

8 November 2018

I recently read an article entitled "*5 common mistakes farmers make when drying off cows. The author discussed many items of concern to insure a healthy dry-off."* It is a good, informative discussion that is well worth the time to read. It can be viewed at www.independent.ie/business/farming/dairy/dairy-advice/5-common-mistakes-farmers-make-when-drying-off-cows-37495977.html

While drying-off dairy cattle can be a daunting task, it is also an opportunity to prepare the cow for the next lactation. If done right it can affect the health and productive of the cow as well as her calf and future generations. Done wrong it can have devastation results.

Here is my prescription for drying-off a dairy cow. I know some of the steps may not be acceptable to some dairy professionals but it does conform to the innate physiology of

the cow. Give it a try, I think you will be pleased at the results.

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. Moderately restricting feed and water at this time will hasten the dry-off process.
6. Two 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 milking all 4 quarters, twice a day. At first, the secretion will look like honey gradually changing to look like skim milk and they regular milk.

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.

Research — Reading Between the Lines.

November 24, 2018

We rely on university research in many of our management decision. Unfortunately, often the conclusions or summary statement in a research report does not match the actual data or results. Here is an example of erroneous conclusion drawn by some researchers.

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 authors 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."

Let's take a closer look of some of the excerpts from that study along with some comments (comments in red).

"Trial 1 was 16 weeks in which two groups of cows in mid-lactation (10 cows / group) were group-fed rations with either corn silage or alfalfa hay as the

sole forage, and all supplemental minerals and vitamins were provided free choice." This is too small a group and too short a time to evaluate the nutritional wisdom of animals. A full 12 months would be better as that would encompass the gamut of lactation, dry period, parturition, and back to lactation. Even better would be a multi-year experiment that examines the health and productivity of the calves born to the two research groups, thus evaluating the multi-generational effect.

"Minerals and vitamins were provided in a "cafeteria style" mineral feeder, one feeder per group. The feeder was sheltered and afforded protection from wind and rain. Mineral and vitamin mixes were: calcium, phosphorus, potassium, magnesium, and sulfur trace mineral, bicarbonate of soda, sodium bentonite, sodium chloride, iodine mix and vitamins A, D, and E Intake of each individual mineral was determined weekly for each group."

"Intake of phosphorus, potassium, and vitamins differed between rations. A higher free choice intake of phosphorus by cows fed alfalfa was not expected." It should have been expected as it is well known that cattle need to balance their Ca/P ratio. "Cows could possibly have been consuming more P to narrow the wide Ca:P ratio due to high Ca intake from alfalfa." Of course they ate more P to balance the high Ca in alfalfa. That's what free choice is all about z— giving them the opportunity to self regulate their needs.

"Cows fed corn silage consumed more potassium free-choice, but additional intake still was needed to meet requirements." Whose requirement are they trying to meet NRC standards or what the cow actually needs? The authors could not explain why this group's milk production exceeded the alfalfa group even with their assumed K deficiency.

"Little evidence was found in these two short trials that lactating dairy cows have a specific appetite for individual minerals. Where corn silage and alfalfa, forages that differ in mineral content, were fed as the sole forages to two groups of cows, only in the cases of potassium and vitamins did cows fed corn silage consume large amounts free-choice *possibly to compensate for a dietary deficiency*." Actually the

main mineral ratios were balanced by the cow's mineral preferences. They balanced the critical Ca/P ratio by eating more P to compensate for the high Ca in alfalfa. The cows in the alfalfa group took almost no K while the corn silage group consumed 36 times more K than the alfalfa group.

Given the above perspective, it's difficult to understand how the authors concluded that cattle could not balance their own mineral needs.

It pays to "read between the lines" when evaluating research reports. It is also helpful to know who paid for the research, who did the research and where did the researcher worked before and after he did the research. A good dose of common sense is also indicated.

Why Isn't There more Research on Self Select Minerals for Livestock?

November 28, 2018

Our current scientific culture is almost totally enamored with reductionist research. Typical investigators try to divide everything into smaller and smaller portions and then research the tiny remaining part. As one pundit put it, "They seek to find out more and more about less and less until they finally know everything about nothing."

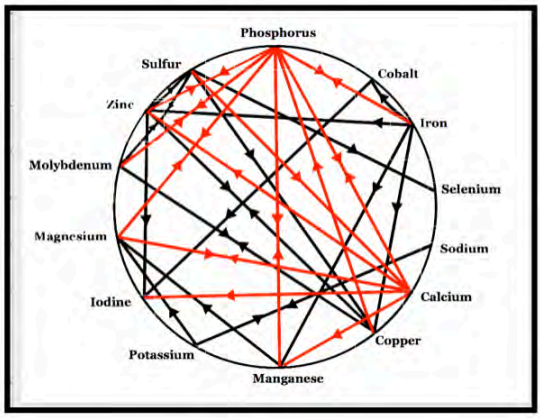
Another side of reductionist thinking is it allows short term, small sample evaluation of new drugs or agricultural chemicals. This enables Big Pharma to quickly get government approval for toxic products before the appearance of the almost inevitable side-effects. Monsanto's originally safety test to gain approval for Glyphosate — two small groups of rats compared for three months — is the epitome of reductionist research.

I believe it is impossible to research the effect of holistic practices using reductionist thinking. The very term "holistic" indicates the concept must be taken as a whole.

The mineral wheel is a simple way to illustrate the complicated interrelationships of any holistic model. Each

mineral has a relationship with most of the others. Any change in one mineral changes at least two others, those two each affect two more, and so on.

For example, investigating the single relation-ship of Calcium to Phosphorus is meaningless if the other minerals are not also considered. A change in one element of a holistic system causes a ripple of changes in all the rest.



The same is true in any milieu , whether it be the health of one animal or of the entire farming operation and human community. As Barry Commoner once stated, “Everything is related to everything else.”

I believe the only way to assess the value of holistic principles is common-sense observation of the results of using those methods over a long period of time. All one needs to do is to take a look at the health benefits to crops, animals, humans, and the environment resulting from the practice of holistic, sustainable agriculture.

There are many good researchers today. One of the best is Fred Provenza, PhD. He is professor emeritus of Behavioral Ecology in the

Department of Wildland Resources at Utah State University. He is the author or co-author of 230 publications in peer reviewed journals and books. He does not specifically address the value of self select minerals, but his work gives considerable insight into the ability of animals, and humans, to self regulate their nutritional needs. Fred's newest book, *"Nourishment - What Animals can Teach Us About Rediscovering Our Nutritional Wisdom" was recently published.* It contains the essence of his life's work and contains much valuable information for anyone that eats food or feeds animals.

What Goes Around, Comes Around

December 7, 2029

What goes around, comes around has a couple of meanings. One is that there are consequences to everything we do — we reap what we sow. Another connotation has to do with the cyclic repetition of events, thoughts, or activities. The length of time for the cycles to occur is variable.

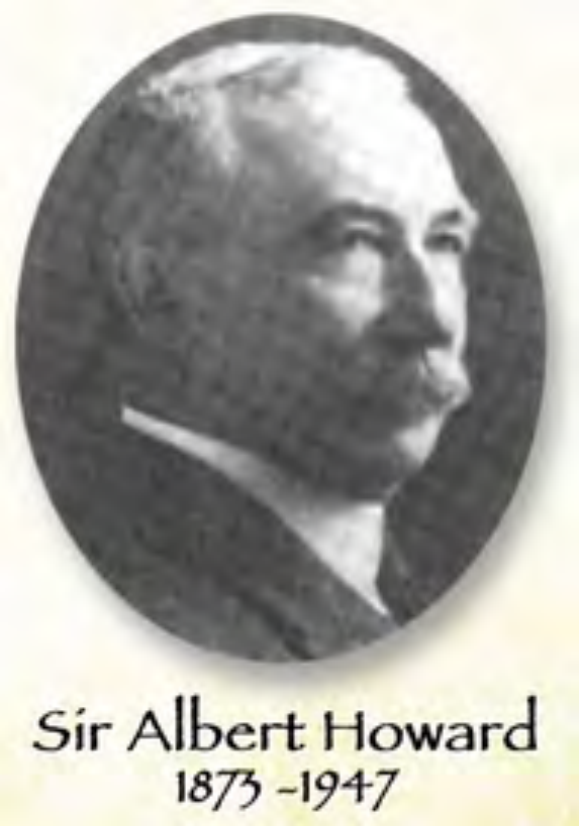
When you are 85 a lot of things "coming around" have already "gone around" — maybe more than once. When you're younger, many significant cycles have not had time to 'go around' and they are not readily apparent to the casual observer.

The periodic changes in clothing styles, especially the length of women's skirts is one example. Changes in scientific perception is another. — "The scientific 'truth' of today becomes the discarded error of tomorrow."

There are also cycles in agricultural practices. As an example, there is a commentary in E*coWatch* entitled *"Soil Health: The Next Agricultural Revolution".* It is a good article and well worth reading. (Check it out at https://www.ecowatch.com/soil-health-as-the-next-agricultural-revolution-2625362894.html)

The opening paragraph reads, *"By adopting three practices—no-till farming, cover crops and diverse crop rotations—farmers worldwide can help preserve the world's soils, feed a growing global population, mitigate climate change and protect the environment."* This may sound revolutionary to the current generation but for me it harkens back to the beginning of the organic movement.

Sir Albert Howard's book *An Agricultural Testament* was published in the US in 1943. It described his research on composting in India. He stated, *"The health of soil, plant, animal, and man is one, and indivisible."* Sir Albert is now known at the *Father of Modern Organic Agriculture.*



Howard's book inspired J. I. Rodale to begin publishing the innovative magazine *"Organic Gardening and Farming"* which popularized the organic concept nationwide. Also in the 1040s, Louis Bromfield wrote many books about how he rejuvenated several farms in his native Ohio. His tales not only explained his methods but also romanticized the results. Dr. William Albrecht, at the University of Missouri, was one of the first scientist to promulgate the idea that healthy animals and man depended on healthy soil and plants.

The common thread here is that all these pioneers from 70 or so years ago advocated similar agricultural practices

almost identical to those cited in the above article – build organic matter, minimum tillage, cover crops, crop rotations, and eschewing the use of chemical fertilizers, herbicides and insecticides.

Hopefully, we will be able to break out of the stranglehold government now has on true organic agriculture and allow the new "revolution" to succeed. What goes around, comes around.

Why D0 Nutritionists' Reject Animal Wisdom?

December 29, 2018

I have often wondered why more main-stream livestock nutritionists do not embrace the concept of animal nutritional wisdom and shun the use of cafeteria-style mineral feeding.

When questioned about this, many will opine, "Well, animals in the wild may have done this, but domestic animals have been bred-up to the point they have lost this ability."

Some will point out our domestic animals often overeat grain or protein supplements. This is true because these feeds are not inherently natural to ruminants. They rarely, if ever, overeat pasture or minerals.

Others nutritionists and dairymen give lip service to the need for a better way to quickly adjust for the ever changing mineral needs of animals but continue to reject self-select, cafeteria-style mineral feeding — possibly because of peer group pressure to conform to conventional industry standards.

I do not deny nutritionists are able to wring out a lot of milk from a herd of cows — but at a huge cost when one

considers the average dairy cow in our country is 'burned-out' at an early age and rarely completes even two lactations.

Modern nutritionists rely heavily on computer generated Total Mixed Rations (TMR). Data from feed testing is entered into the ration balancing program. These figures may indicate chemical composition bu not necessarily bio-availability. A ration is then generated that conforms to the nutrient requirement tables published by the NRC (National Research Council). These recommendations may or may not apply to the situation at hand. The computer 'crunches the numbers' and spits out a recommended ration that purports to meet the nutritional needs of all the cows in the group.

Upon receipt of the print-out, the dairyman or his workers still must assemble the feedstuffs, properly measure and mix the ingredient, deliver the final ration to a feed bunk adequate to accommodate all the cows. This series of steps is fraught with opportunities for mistakes. What the cows actually get into their metabolism may bear little resemblance to the computer print-out, Check out: http://www.dochollidaysblog.com/docs-blog/what-are-you-really-feeding.html

The problem is that a TMR fails to allow for variation in individual nutritional needs. There is no such thing as an "average" cow. With a TMR only a few cows may get precisely what they need — but some get too much of one thing or another and others get too little. When thinking about averages consider this: "If you have one foot in boiling water and one foot in freezing water — on the average your feet are comfortable."

The bottom line is there is no way to ascertain and correct the nutritional state of the animals unless and until obvious signs of malnutrition occur. If I were a dairyman or a dairy nutritionist I would insist on the presence of a full array of separate self-select minerals.

A properly installed and managed cafeteria-style mineral feeding system provides many benefits.

- It is an excellent method to insure precise, balanced mineral intake for each individual animals. It allows for the immediately adjustment for changes in the daily and seasonal needs of the individuals in the herd.
- It is a safety net and diagnostic tool that high-lights problems associated with mineral imbalances caused by changing feed quality or environmental conditions.

I think we should continue to use our accumulated scientific knowledge when compounding rations for animals, and also to let our animals exhibit their nutritional wisdom to fine-tune the computer generated ration — thus combining the best of the two concepts.

Epigenetics: "... the 'blood' is still there."

Monday, January 28, 2019

In the early and mid years of the last century it was not uncommon for folks with lots of money to spend to buy a ranch and stock it with pure-bred cattle. Many of these enterprises were successful and many were not. Novice ranchers were prone to make mistakes in managing the care, breeding, and nutrition of their cattle. This usually led to a degradation of the appearance and productivity of the once fine looking breeding stock. The end result was frequently a dispersal sale — selling the cattle at auction.

My good friend and client, Evan, was a prominent and successful breeder of pure-bred polled-Hereford cattle in Missouri. His knowledge of the bloodlines and families of Hereford cattle was unsurpassed. Moreover, Evan was an innovative herdsman. He fed his cattle well and was innovative in his approach to animal nutrition. He was adding Wheat Germ Oil to the ration of his breeding a long time before livestock nutritionist recognized the value of Vitamin E.

If the dispersal sales mentioned above involved Hereford cattle with bloodlines compatible with those in his herd, and was located within a reasonable driving distance, Evan would attend the sale. He rarely came home empty handed.

Evan would keep his new purchases separate from his main herd for a week or two just a precaution. During the quarantine period he would call me to do a health evaluation. The first time I did this, I was somewhat taken aback, as the new animals were not good specimen of the breed. Evan noticed my dismay and said, "Yeah, I know they look like Hell, but they didn't cost much and the blood is still there." He explained that by 'blood' he meant the bloodlines or genetics were intact and opined that good nutrition could build them back up. I was not convinced.

After some years, though, whenever I made a farm visit, Evan would p oint out individuals in his herd that

would have graced any Hereford show-ring. With a grin on his face he would remind me, “Those are all direct 2nd or 3rd generation descendants of the animals you ridiculed years ago.”

Evan may not have understood the fine points of epigenetic as we now understand it, but he intuitively employed the basic concept of epigenetics decades before it appeared in the scientific press.

In simple terms, epigenetics is the study of changes in gene expression that occur without changes in the genetic code itself — genes are not set in stone as previously thought, but are like switches that can be turned off or on by various factors such as nutrition, stress, drugs, and sundry environmental factors — “and the ‘blood’ is still there.”

The resulting change in genetic expression may persist for generations. As one researcher noted, “If you are of reproductive age, whatever you take into your body— food, drink, drugs, air — may affect the health of your great grandchildren.” These alterations can be good or bad — going down hill in the aforementioned mismanaged herds or climbing back uphill in Evan’s herd.

“If you want to reduce human or veterinary medicine to a common denominator, you have to remember that when the animal’s physiology is deranged it doesn’t make much difference what you call the problem — but it is very probably a mistake in nutrition often founded on the attempt to be economical.”

William A. Albrecht, PhD

Advanced Biological Concepts®
301 Main Street - PO Box 27
Osco, Illinois 61274-0027
Phone: 1-800-373-5971
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