

International Perspective on Bovine Medicine

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After attending and participating in biennial World Association for Buiatrics meetings since 1964, I'm more impressed with the similarities among bovine practitioners from around the world than their differences. The receptions I have received at these meetings has strongly reinforced the decision I made many years ago to become a bovine practitioner. They are down-to-earth, humble people without pretense. Our governments may have major differences but when bovine practitioners associate with each other at scientific meetings and discuss bovine practice, national differences are forgotten.

Of course, if you have never been to a world meeting, you must be prepared for the spirited discussion that follows the presentation of papers.

Speakers must be prepared to defend their papers against some very probing questions, even from their own countrymen; and if they cannot properly defend their papers, they may be torn to shreds. I have learned much from attending world bovine meetings and urge all of you to participate in the XIX Buiatrics Congress in Edinburgh, Scotland, July 8 - 12, 1996.¹

If American bovine practitioners wish to be at the forefront of our profession during the twenty-first century, I believe we must be aware of what is occurring in bovine practices in the United States and the world. Bovine diseases take a tremendous financial toll in cattle herds as detailed in the following estimates of losses of bovine diseases.²

	(Million \$)
Shipping fever	3,000
Neonatal diarrhea	1,750
Blue-tongue	3,000
Bovine enzootic leukosis	900
Leptospirosis	4,500
Brucellosis	3,500
Mastitis	35,000

In the future we will no longer be able to confine ourselves to bovine practice in Tippecanoe County, Indiana; Snohomish, Washington; or Edna, Texas and ignore the remainder of the world. I believe the frequently stated opinion by U.S. federal disease regulatory officials, "*It is not if exotic diseases such as rinderpest*

and foot and mouth disease appear in the U.S., it is when they appear." It behooves us to remember that bovine virus diarrhea (mucosal disease), which is widespread in the United States cattle herd of 103,819,000 head (January 1, 1996),³ cannot be differentiated from rinderpest on the basis of clinical signs.

The world is continuing to shrink insofar as speed of transporting man and animals and the dissemination of information are concerned. For example: A cattle breeder telephoned and inquired when I could go to Mexico to examine two cows. I thought I would shock him and said "tomorrow." It didn't shock him one iota. The next morning I boarded a plane in Indianapolis, Indiana and headed for Mexico City. A farm manager met me at the airport, drove me to an ultramodern 300 cow dairy farm where I examined and treated two cows, and returned to Lafayette, Indiana that same evening. It is not rare for bovine veterinarians to consult in many parts of the world. Dr. Tom Fuhrmann regularly consults in Saudi Arabia, Mexico, and other countries.

I realize we do not all aspire to such endeavors, but the opportunities are there for those who have the courage and are willing to prepare themselves to meet the challenges.

Although I am well aware the United States does not rule the world as Great Britain did in the eighteenth, nineteenth, and early twentieth centuries, we are one of the world's greatest powers, wield immense influence, and have the opportunity to help many unfortunate people. During Great Britain's dominance, many professionals, including veterinarians were sent all over the world and they are still preparing veterinarians for overseas service much more thoroughly than we are in the U.S. If the United States is to consolidate its current position in the world and even improve that position, Americans must make their presence felt in far places. Military might of course is a factor, but in the long term, it is not sufficient. **We must prove our right to be in these places by meeting the needs of the people. Providing superior veterinary service for their cattle is one way we can meet their needs.**

If we are to meet the veterinary needs of the world's cattle owners, we must be knowledgeable of the ruminant diseases that cause severe economic losses around the world. According to Scholtens as reported by Blajan,

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ruminant diseases that cause severe worldwide economic losses are grouped as follows.²

Epidemic High Mortality

CBPP (Contagious bovine pleuropneumonia)
Malignant Catarrhal Fever
PPR (Pestes des petits Ruminants)
Rift Valley Fever
Rinderpest

Endemic High Mortality

Anthrax
Blackquarter
East Coast Fever
Enterotoxaemia
Haemorrhagic Septicemia
Trypanosomiasis

Epidemic Debilitating

Ephemeral Fever
Foot and Mouth Disease
Infections Bovine Rhinotracheitis
Lumpy Skin Disease

Endemic Debilitating

Brucellosis
Dermatophilosis
Fascioliasis

The world needs the American bovine practitioner's expertise to help meet its food needs and prevent transmission of diseases common to the human and bovine species. Human malnutrition and starvation have been widespread in underdeveloped and developing countries for many years. Twenty-five years ago, the lifeboat theory was a popular topic whenever the world's food supply was discussed. The theory was based on the premise that a limited amount of food was available for a burgeoning world population and some people would have to starve. Someone would have to decide who would starve and theoretically throw them out of the boat.

More recently, we have accepted the fact that there is currently enough food for all barring a catastrophe; but there are problems of maldistribution, shortage of high protein food of animal origin, and lack of money to purchase it. In order to prevent hunger and starvation, every effort should be made to assist the countries of the world in meeting their own food needs. I am aware that the United States beef and dairy farmers want to maintain their export market but they cannot feed the world, and assisting underdeveloped countries to meet their food needs will not destroy the export market, since underdeveloped countries do not have the funds to purchase our meat and milk. Even though our government may purchase food from US farmers and donate it to starving people, it is often difficult or impossible to deliver it to the intended recipients.

Transportation costs are often prohibitive. Food is intercepted or so long delayed in transit that it becomes inedible, and rival military units do not permit food to reach the hungry people for whom it was intended.

Gifts of food are not the long-term answer to food shortages. I'm reminded of the old adage "Give a man a fish and he will be hungry tomorrow. Teach him how to fish and he will be able to feed himself for a lifetime." If we are going to teach the citizens of developing nations how to feed themselves, veterinarians can help them develop an animal agriculture that makes efficient use of feedstuffs that humans cannot digest, help them maintain the health of their animals, and prevent transmission of animal diseases to humans.

Food Animal Agriculture around the world has been under attack during recent years by animal rights extremists who contend animals should not be used by man in any way, especially not for food, and by some individuals who feel it is extremely wasteful to feed grain to animals. It has been estimated that when you feed a man grain, he can subsist on 300 pounds of grain per year, but when you feed the grain to cattle and man eats the beef, it requires 2,100 pounds of grain per person per year. Cattle can grow and produce high quality protein with little or no grain so the above argument does not pertain to grass-fed cattle.

When we consider the expected increase in the world's population, a need for high quality protein of animal origin in the human diet, over 60% of the world's land surface suitable only for grazing, an estimated 1,040,000,000 head world cattle population,⁴ a ruminant's unique ability to metabolize cellulose to produce energy, the production of 150 pounds of cellulose per person each day, and the ruminant's ability to use non-protein nitrogen (NPN),⁵ I am convinced animal agriculture will survive in spite of the extreme animal rights' apparent attempts to destroy it.

Animal rights organization are numerous, well-funded, extremely aggressive, and shrewd. The proponents of animal agriculture including bovine practitioners must be ready, willing, and able to promote their agenda at every opportunity to a public that is increasing uninformed of animal agriculture's contribution to their well-being.

The World Veterinary Association adopted a *Policy Statement on Animal Welfare, Well-Being, and Ethology* at its 1989 meeting in Paris. The two aspects of the statement that pertain to this paper are:

1. Policy statement on Animal Ethology and Welfare

In accordance with worldwide sensitivity regard-

ing the use of animals, the veterinary profession fully embraces the two disciplines of ethology and welfare. The veterinary philosophy relating to the two fields can be stated as follows:

Ethology puts the emphasis on knowledge which is scientifically based. Its aim is to clarify needs that can be fulfilled and harm avoided. With this knowledge animals can be cared for in the best manner. Only with optimum management and care (animal welfare) can the animal live and produce to its potential. This is also an ethical approach.

Clearly man is the species responsible for the environment and for other species. The veterinary profession is pre-eminent in this work. We do not accept the view that animals have specialized right as an entity on their own. We believe that animals can benefit more from the point of view that man is responsible for the provision of animal welfare than from the view which promotes animal rights alone.

2. Policy Statement on Freedoms of Animals

It is recognized that certain provisions of care are essential to welfare in the form of five freedoms. Modified from various sources in applied ethology, these can be stated as follows:

- i. *freedom from hunger and thirst,*
- ii. *freedom from physical discomfort and pain,*
- iii. *freedom from injury and disease,*
- iv. *freedom from fear and distress,*
- v. *freedom to conform to essential behavior patterns*

I believe veterinarians, the original animal welfarists, should strongly and vociferously support animal welfare, but not animal rights.

A European ban on U.S. beef because the live animals had been treated with growth promotants early in the feeding period has raised the ire of the U.S. beef industry. The ban was considered by the U.S. to be a trade barrier rather than any real concern due to the administration of the growth promotants.⁶ Beef producers in the U.S. realize an 8-15% increase in rate of gain from using growth promotants.⁷ The Food and Drug Administration (FDA) limits the amount of residue (hormones) in beef to no more than one percent of the daily production of that hormone by a person in the most sensitive part of the populace.⁷ The effect of these hormones on the female population is not considered to be potentially harmful. Since a woman's body absorbs only 10% of the estrogen consumed, she would have to eat over 4,700 pounds of meat before exceeding FDA limits.⁷

Since growth promotants are such a boon to beef producers and they are banned in Europe, a sizable black market for them has arisen and many producers are apparently using them illegally according to some reports.

Even though the Green Revolution, which got underway in 1965, has been a great success in many parts of the world and has enabled countries like Mexico and the Philippines to become grain exporters, the specter of an inadequate food supply in the future has not disappeared. Population control has also had some beneficial effect on meeting the world's food needs in countries such as China, the U.S., and Europe by greatly reducing the human birth rate, but overall, somewhere in the years ahead, the world appears to be on a collision course between the human population and the food supply.

When Americans attempt to alleviate or solve another country's food problems they frequently make the mistake of assuming that successful policies in the United States will also be successful in other countries. In practice, this is rarely true. Strategies must be modified to fit the situation in each country, and it is essential that we become aware of economics, religious mores, traditions, and numerous other aspects that impact on the problem in that country. For example: India has been desperately trying to feed its teeming millions of inhabitants and doing quite well during recent years in spite of dietary restraints that astound American animal agriculturists.

Indians comprise nearly 1/5 of the world's human population and India has approximately 1/5 of the world's bovine animals at a stocking rate 30 times the world average.⁸ To the western mind, this creates a calamity when we are informed that a majority of Indians are Hindus and Hindus are forbidden to eat beef.

Agriculture provides 1/2 of India's gross national product and it is bovine powered.⁸ More energy (16%) is obtained from animal manure than any other source -- even more than the 14% from animal work and 9% from human labor. In addition to draft power and the energy derived from manure, Indian cattle make a major contribution to the economy through milk and hides. We must also realize that not all Indians are Hindus and not all Hindus completely follow every religious dictate. Few cattle carcasses are buried or thrown into the Ganges. Apparently someone eats them.

China is a country which has intrigued Americans for many years and we have become increasingly involved with it during recent years. China has few cattle⁹ compared to a human population of nearly one billion.¹⁰ Chinese also consume very little beef since only 17 pounds of meat are consumed per person yearly and 90 percent of it is pork.⁹ Milk consumption is also very limited and reserved for babies, the elderly, and sick people.

Milk consumption, however, has doubled during recent years and the Chinese government has instituted a program to increase milk production.

The Chinese could become a ready market for our cattle and veterinary expertise in maintaining bovine health and productivity. Our knowledge of Chinese veterinary service is limited, but we do know that most veterinarians are in government service.

There are two levels of veterinary service.⁹ The upper level is composed of individuals who have attended college for four or five years and are quickly elevated into administration, education, and research positions. Lower level individuals receive six months to two years of technical or vocational training followed by field assignments.

The education curriculum offered to both levels contains western and traditional (herbal) subjects along with acupuncture. Students have the privilege of selecting one curriculum or portions of both.

The Japanese appear to be very protective of their livestock industry as is true of many countries since they fear being dependent on another country for something as essential as food. Japanese people have increased their consumption of beef and milk and it is reasonable to assume that American veterinary expertise may have increasing involvement in Japanese beef and dairy purchases and production.

The Pacific Rim countries are currently attracting a lot of attention from the United States and our future foreign trade prospects appear to be extremely promising in this area.

Africa has 162 million head of cattle but production of animal protein from these cattle is meager.¹¹ Five-hundred and forty-two kilograms of animal protein are produced per 100 hectares of land in Africa compared to 38,085 kilograms per 100 hectares of land in Europe.¹¹ Approximately 75% of the livestock is owned by small farmers with livestock providing the major source of income. The remaining 25% of livestock is owned by pastoralists who are dependent upon livestock for both food and income.

Cattle provide meat, milk, blood, hides, draught power, fertilizer and fuel. It is estimated that a draught oxen can increase a family's agricultural output six-fold. Approximately one-third of the gross income of many African countries comes from livestock and 90% of the foreign exchange earnings of Botswana, Lesotho, and Somalia comes from livestock,¹¹ veterinary service for these animals is minimal and diseases such as rinderpest frequently take a tremendous toll.

The major constraints on livestock development in Africa appear to be animal diseases, nutrition, breeding, husbandry, and shortage of trained manpower.

"The role of the veterinarian in Africa should be to work for an increase in animal production by becoming fully engaged in the prevention, control, eradication of

animal diseases and treatment of sick animals, improvement of animals under different production systems through various mechanisms such as the institution of rational breeding and reproduction practices, feeding, and overall management packages. To effectively cope with these tasks, the veterinarian should be well acquainted with the type of animal production system with which he is dealing."¹¹

The need for all bovine veterinarians to be familiar with diseases that affect the health of cattle around the world is well illustrated by the appearance of a new disease, bovine spongiform encephalopathy (BSE), in Great Britain in 1986. The cause of BSE, also known as Mad Cow Disease, is not positively identified but is closely related to and probably is the same organisms that produces scrapie in sheep. Epidemiological data indicate that it was originally caused by feeding cattle meat and bone meal produced from scrapie-infected sheep. Since the disease is 100 percent fatal and signs are similar to some human neurological diseases, it has thrown the entire animal industry in Great Britain into turmoil and beef consumption has been decreased by 25 percent. In 1992 and 1993 new cases approached 10,000 per month. New cases are continuing to appear although at a decreasing rate. As of December 1, 1995 the total number of confirmed cases reached 155,621 head and total number of affected herds reached 32,991; 54.1 percent of the dairy herds.¹² Since appearing in Great Britain the disease has been diagnosed in Northern Ireland, Guernsey, Jersey, Isle of Man, Republic of Ireland, Switzerland, Portugal, and France. Cases have been imported into Germany, Canada, Denmark, Falkland Islands, Italy, and Oman.

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