Herd Medicine In Perspective

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A recent study published in the Journal of the American Veterinary Medical Association found that U.S. dairy producers spent 93.3 million dollars with veterinarians for animal health products and 207.6 million dollars for professional services in 1985. The surveyed dairy producers utilized a veterinarian's service about 20 times a year, 4 times the frequency of use for beef, hog and sheep producers.[1]

Based on manufacturers' prices, the total livestock market for pharmaceuticals, biologics and feed additives in 1985 was 1,779.2 million dollars. Approximately 158.2 million dollars (9%) of total product sales were through veterinarians, while 1,621 million dollars (91%) of total sales were through over-the-counter channels.[1]

This study stated that producers' perceptions of the local veterinarian's knowledge and cost-effectiveness relative to alternative sources of information are significant determinants of the choice of first contact for assistance. At least 7 out of 10 producers would contact a veterinarian first for diagnosis and treatment of sickness or injury; 5 out of 10 producers would contact a veterinarian first for a reproductive problem. About 3 out of 10 producers would contact a veterinarian for a herd management problem; only 1 out of 10 would contact a veterinarian first for a question on feed/nutrition.[1]

Livestock producers possess a wide variety of attitudes and abilities. They are, as a group, very conservative. The reason for this attitude often stems from older family members who believe that hard-won economic gain is not to be wasted on personally untested techniques. As a result the tendency to stay with the old "accepted" methods of livestock production tends to prevail, this is best defined as tradition.

Historically, as long as livestock numbers in any given herd were small and adequate labor was available to care for the herd, most units survived economically. With the advent of industrialized societies, decreased labor availability forced producers to either increase herd size or disband their operations.

Those individuals who elected to continue production of livestock were faced with the constructon of confinement units not only because of lack of an available labor force but also because of increased land prices which forced them to discontinue pasture usage. Pastures were converted to cropland which would grow crops to yield higher economic returns.

Confinement of livestock was initially an untried technique. Design and construction of many livestock confinement facilities have often been completed with little or no input regarding disease control.

Antibiotics were discovered and were heralded as being the savior of mankind and his livestock. Producers readily accepted these "miracle drugs" and proceeded to use them in an attempt to make old methods of livestock production work in a setting which had been designed with little or no thought to microbiology and epidemiology. As a result, antibiotics are often used as substitutes for sound management practices.

While these changes in the livestock industry were occurring, veterinary practitioners periodically registered concerns after being called to deal with health situations which were the product of this new era. Further, this was a new situation for veterinarians to face since their professional education had not dealt with the effects of environment on animal health. As a result practitioners often conveyed the idea to their producer clients that they were concerned but solid answers were not readily available.

Livestock owners evaluate a veterinarian's clinical ability and knowledge by personal contact. It is important that the veterinarian project a positive image when answering questions regarding disease and management by conveying a sound understanding of the problem. The professional education process is very important because it must not only provide information, it must ensure a thorough understanding of herd disease and herd management. Educators must understand field problems if they are to convey these concepts to veterinary students.

In 1966 the preventive veterinary medical program in dairy and beef cattle at the University of Minnesota was conceived by the Large Animal Departmental Chairman, Dr. D.K. Sorensen. The program is now referred to as Total Animal Health Care, Environmental and Manage-

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ment Systems. Initially, this veterinary practice was operated from the facilities at the University of Minnesota, College of Veterinary Medicine, located on the St. Paul campus. It soon became evident, however, that in order to provide an effective teaching and research program, the practice would have to be moved from the metropolitan area.

In 1972 the veterinary practice was moved to a dairy/beef area in south-central Minnesota where it continues to be utilized for teaching, research and continuing education in preventive veterinary medicine.

Since its inception in 1966 this practice has been directed toward identification and correction of disease, environmental and management deficiencies in an epidemiological and microbiological approach to herd problem solving.

Producers on this program are first requested to set goals for themselves and for their herds. This phase is then followed by an evaluation of all aspects of the herd. A plan is then detailed to correct deficiencies and thereby increase health and productivity.

It should be emphasized that although the basic structure of an effective herd health program may in many respects be similar between herds, no two herd programs are exactly alike in all details. All livestock operations are different in disease patterns, environmental deficiencies and management capabilities. Failure of a herd health program is very predictable if it is not designed to fit a specific livestock operation. In addition, uncorrected environmental deficiencies will either be reflected in less than optimal results or in failure of the program.

The following brief outline is not only helpful in assessing a herd's health status, it is also beneficial in establishing herd goals. After a herd has been assessed do not set goals initially at an unattainable level, they can be revised downward at any time.

Data collected since 1962 indicates the cost of this program in "well cow medicine" compared to the treatment of only emergency cases will essentially quadruple total veterinary care costs to the client. Veterinary fees in a dairy program are more easily understood by a producer if all fees are related back to the cost per cow per lactating year. The reason for this is that the lactating dairy cow is the income generating unit. Veterinary cost per lactating cow per year in this practice has ranged from $30 to $120 per cow per year. This covers all fees including professional consultation, veterinary examinations and surgeries, vaccines, medication costs, laboratory fees and mileage charges.

At the outset this appears to be a very high fee until benefit is studied in a cost/benefit ratio.

When this concept of private veterinary practice was initiated by the author (1962-1966), producers reported a $3 to $5 return per dollar invested for emergency services

Total Animal Health Care, Environmental and Management Systems Dairy Herd Goals.

	Nos.	%	Goals
A. Mortality			
1. Birth = calves dead at birth / calves born	= ___	= ___	3%
2. 0-30 days = Calves dead 0-30 / calves born	= ___	= ___	0.5%
3. One-24 Months = calves dead 1-24 mo. / calves born	= ___	= ___	0%
4. Total = calves dead birth to 24 mos. / calves born	= ___	= ___	3.5%
B. Breeding Heifers			
1. Age = interval birth to first service / total heifers	= ___	= ___	13-14 mos.
2. Weight = total weight at first service / total heifers	= ___	= ___	800 lbs. (360 kg.)
C. Calving			
1. Age = Interval birth to parturition / total heifers	= ___	= ___	22-23 mos.
2. Weight = total weight at parturition / total heifers	= ___	= ___	1250 lbs. (610 kg.)
D. Culling Rate (Cows)			
1. Involuntary = number culled / total cows	= ___	= ___	10%
2. Voluntary = number culled / total cows	= ___	= ___	25%-35%
3. Total = Total culled / total cows	= ___	= ___	35%-45%
4. Rule of thumb—Heifers are sold only after a thorough review of health records. The heifers are the genetic pool—cull low producing cows from the bottom of the DHIA records.			
E. Reproductive Efficiency (Milking Herd)			
1. Interval to first estrus = calving to first estrus / total cows	= ___	= ___	45days
2. Interval to first service = calving to first service / total cows	= ___	= ___	45-60 days
3. Days open = days from calving to conception / total cows	= ___	= ___	60-80 days
4 .Calving interval = days calving to calving / total cows	= ___	= ___	335-365 days
5. Services per conception = services in all cows / total conceptions	= ___	= ___	1.5
F. Conditions Associated With Parturition			
1. Milk Fever = cows milk fever / total parturitions	= ___	= ___	2%
2. Primary Ketosis = cows primary ketosis / total parturitions	= ___	= ___	0%
3. Displaced Abomasum = cow displacements / total parturitions	= ___	= ___	2%
4. Mastitis = cows clinical mastitis / total cows	= ___	= ___	<8%
5. Somatic Cell Count	= ___	= ___	<100,000

rendered. Herds on early herd health programs (1962-1966) reported a $7 to a $9 return per dollar invested in this type of service. As consultation expertise has progressed and laboratory diagnostic capabilities have improved, more and more of each individual owner's operation has been made available for veterinary consultation. This service now includes calf rearing, replacement heifer supervision, serological assessment and vaccination program design, fertility control, mastitis control, general health services, environmental redesign and construction supervision, nutritional counseling, and dairy beef rearing. With the progression in veterinary services offered, the economic return to the producer has risen from $7 per dollar invested in veterinary care to over $20. Emergency care is also provided when needed. It has been gratifying to note that the number of night and weekend emergency calls have dropped precipitously since the inception of a total animal health care approach to veterinary practice initiated 25 years ago. Most herds on this program are visited on a weekly basis and the herds that are not visited weekly are on an every-other-week rotation.

Dairy operational costs have risen markedly—more rapidly than milk prices have risen. As a result efficiency is more important that ever, emphasizing the production of a quality product (milk and meat) which is antibiotic residue free and has earned consumer trust and satisfaction. The rolling milk production average in all herds on this program is presently over 18,000 pounds per cow per year (8,200 kg per cow per year). The overall approach to this concept of practice has been outlined in other publications.[2,3,4,5,6,7]

The total animal health care environmental and management systems approach for dairy cattle has shown 4 benefits in addition to the high health status, increased productivity and increased economic return to the owner. 1) Antibiotic cost for rearing calves has been reduced over 90%; 2) since no antibiotics are used in milk replacer or calf starter, sensitivities to the more common antibiotics (i.e., penicillin) have returned. It appears clincially that penicillin is as effective in these herds now as when it was first introduced; 3) as a result of the use of antibiotics, only where they are indicated, tissue residues other than in a few individually treated cases, are no longer a concern; 4) an added advantage to the veterinary practitioner is that many drugs and pieces of equipment used in an emergency practice are no longer needed. Smaller motor vehicles are adequate and operational costs are thereby further reduced. As practicing veterinarians, if we expect our clients to become more efficient, we must also become more efficient ourselves if our profession is to survive. As educators and basic researchers we must be fully aware of the role that environment plays in the disease process in field applications. We must also be able to effectively communicate these findings to our students and to livestock producers as well.

Summary

Veterinarians in the United States are currently evaluating their professional activities in order to serve the livestock producer and food consumer more effectively. Planned health programs are only partially effective if environmental and management deficiencies are not identified and corrected. This is accomplished most effectively by an interdisciplinary approach between veterinary medicine and agricultural engineering. This highly effective approach has been utilized at the University of Minnesota, College of Veterinary Medicine for over 20 years. Dairy producers on this program presently realize an economic benefit of over $20.00 in return for each dollar invested in total animal health care, environmental and management systems.

Summary in German

Tieraerzte in den Vereinigten Staaten waegen im Augenblick ihre aerztliche Wirksamkeit aus, damit sie dem Nutztierhalter und Verbraucher effektvoller behilflich sein koennen. Geplante Gesundheitsprogramme sind nur teilweise wirksam, wenn Umgebungs- und Bewirtschaftungsmangel nicht identifiziert und behoben werden.

Dieses ist am wirksamsten mit einem interdisziplinaeren Ansatz zwischen Tiermedizin und den Landwirtschaftswissenschaften durchgefuehrt. Diese sehr effektvolle Stellungnahme verwertet die "University of Minnesota," Tieraeztliche Hochschule schon seit 20 Jahren.

Milchwirtschaften in diesem Programm erzielen jetzt Gewinne von ueber $20 fuer jeden in allgemeiner Tiergesundheitsfuersorge, Umgebungs- und Bewirtschaftungsmethoden investierten Dollar.

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