

A dairy producer's perspective on managing drug and antibiotic use in dairy animals

Leon D. Weaver, VMD, DACT

Partner, Bridgewater Dairy Group, 14587 Road 8-50, Montpelier, OH 43543

Abstract

This presentation outlines how three large dairy farms with common ownership implemented programs to make standardized animal care and treatment decisions. The approach used on these dairies may offer concepts useful to others seeking to enhance their involvements and outcomes in these areas. Central to the effort on these dairies was identifying the one specific owner, partner or manager who would make the final policy decisions as well as the veterinarian(s) authorized to negotiate final drug and treatment policy and protocols with the owner. These dairies established an Animal Care and Health Policy Group to lead this effort. This group comprised of the owner, veterinarian, and Dairy Herd Managers meets at least monthly to discuss, establish and modify animal care and treatment policy, protocols and procedures. The policy group often includes or consults with others such as veterinarians representing pharmaceutical companies, drug vendors and milk inspectors in both policy planning and staff training activities. Monthly meetings are scheduled at each dairy to train animal care managers and their associated staff. Veterinarians involved in these planning and training activities have developed a portfolio of technical services and communication and language skills that they can provide more expertly and more conveniently than others.

Key words: dairy, antibiotic, Animal Care and Health Policy Group

Résumé

Cette présentation souligne comment trois grandes fermes laitières en propriété commune ont mis en place des programmes permettant de prendre des décisions normalisées en égard au traitement et aux soins des animaux. L'approche utilisée par ces fermes laitières met de l'avant des concepts utiles à ceux qui voudraient revaloriser leur engagement et les résultats dans ces domaines. L'identification du propriétaire, partenaire ou gestionnaire particulier qui prend les décisions finales sur les pratiques de même que celle du vétérinaire autorisé à négocier avec le propriétaire la politique finale touchant les médicaments, le traitement et les protocoles a été un élément clé de l'effort déployé par ces fermes laitières. Ces fermes ont formé un groupe s'intéressant à la politique de

santé et de soin aux animaux pour mener cette initiative. Ce groupe, comprenant le propriétaire, le vétérinaire et les gestionnaires du troupeau laitier, se rencontre au moins une fois par mois afin de discuter, d'établir ou de modifier les politiques reliées au soin des animaux et au traitement et les protocoles et les procédures. Le groupe responsable des politiques inclus ou consulte souvent d'autres intervenants, comme des vétérinaires représentant les compagnies pharmaceutiques, les fournisseurs de médicaments et les inspecteurs laitiers, pour les activités de planification des politiques et de formation du personnel. Des rencontres mensuelles sont planifiées dans chaque ferme laitière pour la formation des gestionnaires chargés du soin aux animaux et leur personnel. Les vétérinaires rattachés à ces activités de planification et de formation ont développé un éventail de services techniques et de compétences au niveau de la communication et du langage qu'ils peuvent offrir plus adéquatement et plus facilement que les autres.

Introduction

Nearly all dairy veterinarians and most dairy owners and managers are aware that consumers and regulatory agencies expect excellent housing and care of animals. Animal caretakers are expected to be properly trained and monitored as they assess health status of animals, need for treatment, selection of treatments (or no treatment), and when they administer treatments and make culling or euthanasia decisions. All involved are very aware of extensive regulatory requirements when using antibiotics and other pharmaceutical agents in food-producing animals.

Producers and veterinarians also recognize the complexities involved in selecting the most appropriate treatments, routes, doses and durations of therapy, as well as the challenges involved in ensuring that the food supply not be contaminated by any residues from these treatments. In addition, producers and veterinarians are aware of the potentially severe legal, financial and professional consequences that attend the occurrence of even a single error that results in drug residues being detected in meat or milk.

Furthermore, dairy producers and dairy veterinarians are already working together on a regular basis diagnosing and treating animals, and in various other activities spanning such areas as vaccination, reproduction, mastitis, calf and nutrition programs. These activities

often involve the veterinarian visiting the dairy farm on a scheduled basis – often weekly or at least monthly. The relationships between the producer and herd veterinarians and between them and the dairy employees are typically built on established personal relationships, mutual trust, and respect.

Given these facts and circumstances, it is fair to ask, “why then, do herd owners too often do less than thorough and professional planning and execution of animal treatment decisions and activities?” An additional question that routinely puzzles and sometimes frustrates veterinarians is, “why then, are my clients reluctant to pay for professional services that are either legally required to be provided by the veterinarian or are beyond the scope of most producer’s time availability and/or expertise?” It is likely that the answers to these questions are both many and unclear. What is certain is that the dairy foods marketplace and the regulatory environment overseeing production of foods of animal origin do provide more than adequate incentives for producers to desire compliance with marketplace and regulatory expectations.

The objective of this presentation is to describe how 1 group of 3 large dairy farms under common ownership that includes a veterinarian as a partner has chosen to organize people and programs to make excellent animal care and treatment-related decisions happen. Recognizing that successful programs will of necessity be site-specific, it is hoped that this brief description of the programs on these dairies will offer some concepts and tips that may be useful to others seeking to enhance their involvements and outcomes. Some may question whether a veterinarian can fairly present a “producer’s perspective”. It is the author’s hope that his 15 years of ownership and full-time, hands-on management of the Bridgewater Dairy Group (Bridgewater, Ohio) will at least partially mitigate some of the inherent “veterinarian bias”.

Certain past involvements of the author have informed the development of Bridgewater’s programs. One such experience was the author’s participation in development and implementation of prototype treatment guidance health programs and accompanying software that guided caretakers to accurately follow practitioner-designed treatment protocols and documented caretaker compliance in electronic treatment records.^{1,2,3} In addition, Bridgewater’s scheduled use of 2 private practitioner associates to assist with development, guidance, and employee training in animal care and treatment procedures is an adaptation from a retainer fee-based practice the author instituted in large California dairy herds.⁴ Bridgewater’s programs also benefit from knowledge and experience gained from the author’s service on the National Milk Producer Federation’s Animal Health and Animal Care Technical Committees, and on the state of Ohio’s Livestock Animal Care Board. Finally, the business plan of Bridgewater is built to serve the dairy’s mission

of using commercial Holstein cows to produce Class I milk of the highest possible quality to be sold to regional and national customers and marketed as branded and unbranded products.

Removing Barriers and Defining Programs

It is likely that many dairy producers view strict compliance with drug labels and treatment instructions as a regulatory compliance issue rather than a “profit center” for the dairy operation. In addition, producers may sense that more zealous protocol compliance can result in reduced managerial and caretaker options and discretion when treating sick animals. They also likely know that there is an increased need to keep comprehensive, accurate, and detailed treatment records. Too often, this creates a producer perspective that all this extra effort is “additional overhead” cost rather than an investment that will directly increase the profitability of the herd. When these perceptions exist, it follows that there will be diminished enthusiasm for engaging a high-cost-per-hour individual to address these areas.

Producers and their veterinarians can partially overcome the barrier of perceived low return on veterinary investments in drug treatment guidance by stepping back from traditional partial-budget, cost-benefit analysis that looks for near-term, easily quantified financial returns.

Instead, it is useful to embrace the idea that the macro-economic benefits of such investments emanate primarily from protecting consumer confidence and market share for the commodity and any associated brands. Committing to increased veterinary costs based on a less quantitatively definable and more macro-type analysis is counter-intuitive for many production-oriented persons. When producers and their veterinarians do commit to such increased costs, it is essential that they repeatedly communicate to everyone involved the larger picture that justifies these investments. A mantra at Bridgewater is “It is the right thing to do – we are producing food here!” This type of repeated communication is necessary to maintain program focus and compliance excellence.

A second barrier to development of more structured and veterinarian-compensated treatment guidance activities on dairies is often the failure by both producers and veterinarians to design those activities to limit the veterinarian’s involvement as much as possible to those activities that only he or she can do because of the specialized knowledge, experience, skills, and resources possessed or developed by the veterinarian, or because a requirement exists that only a veterinarian can legally perform certain tasks. Unless care is taken to segregate veterinary tasks from those that can be done by others (whether employees of the farm or recruited from off-farm entities) with compensation levels lower than veterinarians, animal treatment guidance planning, training,

monitoring, and compliance assurance will incur higher costs than necessary.

Smaller farms may decide to survey and select individuals from a variety of off-farm sources to produce and provide services, such as bilingual training and materials, drug labeling services, and training in animal handling and treatment procedures. Because of smaller scale, owners of small herds may rely more on ramping up their own expertise and involvement or exploiting other available low or “no-cost” off-farm services. Some larger dairy farms like Bridgewater may be able to justify adding personnel with job assignments focusing on these activities. Other larger herds may do the opposite, and choose to extensively outsource these services because owners and herd managers have limited time and/or because the value of their time does not compare favorably to the cost of outsourcing these services.

Veterinarians who desire an increase in compensated involvement in these activities should develop a portfolio of products and services that they can provide more conveniently, at lower cost and of higher quality than their competitors. There are likely few tools more valuable to the clients of a veterinarian desiring more involvement in this area than fluency in the language of animal caretakers. Combining language fluency with specialized knowledge and resources creates special opportunities for engagement. For example, private practitioners engaged by Bridgewater draw upon their professional education and years of practice experience to teach hands-on obstetrical and neonatal procedures in the language of the animal caretakers using phantom cows and other advance-prepared reusable resources. Practitioners who exploit such opportunities can also additionally leverage their value to the client because they are already familiar with the dairy facility, employees and management team. Veterinarians who cannot or choose to not look beyond the legally mandated requirement to write prescriptions for drugs will likely be limited to that role and will sense their client’s reluctance to pay for these services.

Producers’ willingness to pay for veterinary services in the drug-treatment-guidance area increase when they realize that the practitioner’s time is really being invested in improving the health care, efficiency, and profitability of the herd, and that the drug-treatment-guidance services are weaved into and become an integral part of this activity. When activities are organized in this way, the producer’s mind-set shifts back to “profit-center” and away from “cost-center.”

Practitioners can more easily engage herd owners in this way when producers know with certainty how the activities will be structured, who the providers will be, what the schedule will be, and what the cost will be. As an example, practitioner involvement with Bridgewater was defined by setting up a list of activity areas (e.g. vaccine handling, calf health and performance, maternity;

milking and mastitis; foot care, animal handling). Specific topics to be addressed were identified for each activity area. A schedule was then established that set frequency, duration, day, time of day, and specific dairy employee participants. Bridgewater and the herd veterinarians use a schedule where veterinary activity occurs on each dairy approximately every other week. Activity area focus rotates throughout the year so that each area is addressed on each dairy once or twice annually. Veterinarian visits to a dairy typically last 2 hours.

The veterinarian and Bridgewater further agreed that the veterinarian’s compliance with this schedule would receive the same priority as is placed on maintaining herd reproductive examination schedules and other similar planned veterinary activities that are not routinely interrupted or postponed to make emergency calls to other client farms. Finally, veterinary compensation was established for these services. Bridgewater agreed to hourly billing for these services, because a program where frequency and duration for each veterinary activity was clearly defined also resulted in clearly defined total costs for the professional component of the program.

Establishing Guiding Philosophy and Operating Principles

Each dairy owner and herd veterinarian will need to negotiate and establish the treatment policy and guiding principles that work for them. A summary of Bridgewater’s philosophy and principles follows, and can be used to stimulate discussions and energize program planning.

First, Bridgewater committed to use all drugs legally, all the time. Medicines are used consistent with either the manufacturer’s label, the herd veterinarian’s extra-label drug use label affixed to the drug container, or according to the veterinarian’s written prescription for a specific medical condition of an individual animal. Dairy managers and animal caretakers will therefore exercise discretion about if and when treatment is initiated and ended, but not about the regimen or withhold times. Veterinarians working in the herd cannot promote or promulgate changes or adjust protocols (except in writing for individual animals) other than by first bringing the proposal to the Senior Veterinarian and Managing Partner.

Second, specific treatment policies and SOPs are developed and modified in a formalized process involving at least the herd veterinarian and owner, and are always documented in written protocols and promulgated by introductory and recurrent training. The written protocols are made available for caretaker reference in long, brief and “checklist” formats, and in appropriate languages. Updating and revision of treatment policies, SOPs, labels, and training materials is done on a scheduled periodic basis, not less frequent than annually. Policy and SOP development involves many persons, both from on and

off the dairy. It is a participative and iterative process that requires a number of steps and weeks during each review and update cycle. When finalized by agreement of the herd owner and Senior Veterinarian, it is administered in a consistent manner through the dairy “chain of command.”

Third, deviations from protocols for drug use will occasionally be necessary. Such deviations are always approved in advance by the veterinarian and managing partner. Such approvals of deviations from standard procedures may be for a short term (e.g., an individual animal or group); medium term (a few months to get through a specific situation) or represent a permanent policy change, but they are always written and approved by at least the Senior Herd Veterinarian and the Managing Partner.

Finally, selection of animals for treatment, choosing among available protocols, administering treatments, and deciding to stop treatments and/or cull or euthanize an animal is vested in selected named, trained employees who follow written company policies in exercising this management discretion.

Key Program Components and Roles

Central to this effort is identification of the 1 specific owner, partner or manager who will make the final policy decisions. Similarly, the herd veterinarian authorized to negotiate final drug and treatment policy and protocols with the owner must be identified and formally vested with that role. This herd veterinary responsibility can be centralized in a Senior Herd Veterinarian or disbursed according to herd programmatic areas.

A key program component is the herd’s animal care and health policy group. This group is comprised of the responsible owner and veterinarian, the Dairy Group Manager, and Dairy Herd Managers. The policy group actively solicits input from among diverse dairy employees, including those who have a range of supervisory and/or technical responsibilities.

The policy group maintains a continuing dialogue concerning program issues and herd needs using face-to-face meetings, emails, text messages, and phone calls. The policy group also occasionally meets formally as necessary to set or change policy, although modifying policy is often also accomplished by email interactions. In addition to the responsible partner and senior veterinarian, the policy group often consults veterinarians representing pharmaceutical companies, drug vendors, milk inspectors, and others.

A key personnel component of the Bridgewater program is a company-employed quality assurance person who serves ‘ex-officio’ as technical assistant to the policy group. She researches issues; drafts and rewrites protocols; assembles and prepares training materials; works with animal caretakers – studying their work patterns,

efficiencies and various work constraints; measures animal and employee performance and compliance; trains and re-trains employees; certifies training as necessary; and recommends and evaluates proposed changes in protocols. The Bridgewater employee in this position has an animal production background and an undergraduate degree focused on animal science and microbiology, plus prior quality control work experience in food processing. This employee also has oversight responsibility for maternity, neonatal, and young calf care for the dairies.

Another key component of Bridgewater’s program is regularly scheduled CE and problem solving sessions for dairy managers and technical specialists. This is accomplished by having 6 to 8 “monthly” meetings each year attended by owners, veterinarians, herd managers, and assistant managers from all 3 production facilities. These periodic meetings, which are also attended by the quality assurance person, usually focus on 1 area relevant to current animal health issues, and involve a brief presentation by 1 of the veterinarians on the team. These brief presentations are followed by sharing of data, Q and A, and discussion. The meetings last about 2 hours, including dinner.

Conclusions

It is likely that some producers will not want to engage veterinarians in drug use guidance activities as described above and/or with this level of intensity. Some practitioners will also likely determine that they are not interested in this type of involvement, or that programs such as those described above are not parsimonious with their practice objectives or style. For those who are curious or even more interested, it is hoped that this presentation has stimulated thoughts and discussion that can inspire establishment of expanded veterinary involvement in client herds. The author is confident that programs such as those described in this presentation can be successful and be a “win” for cows, dairy employees, owners, veterinarians, and consumers. This confidence comes from having conducted similarly structured programs in private and academic dairy practice in herds ranging in size from 200 to 5000 cows in the southwestern US, as well as in the Ohio and Indiana herds in which he now has ownership interest.

References

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American Association of Bovine Practitioners

Prudent Drug Usage Guidelines

The production of safe and wholesome animal products for human consumption is a primary goal of members of the AABP. In reaching that goal, the AABP is committed to the practice of preventive immune system management through the use of vaccines, parasiticides, stress reduction and proper nutritional management. The AABP recognizes that proper and timely management practices can reduce the incidence of disease and therefore reduce the need for antimicrobials; however, antimicrobials remain a necessary tool to manage infectious disease in beef and dairy herds. In order to reduce animal pain and suffering, to protect the economic livelihood of beef and dairy producers, to ensure the continued production of foods of animal origin, and to minimize the shedding of zoonotic bacteria into the environment and potentially the food chain, prudent use of antimicrobials is encouraged. Following are general guidelines for the prudent therapeutic use of antimicrobials in beef and dairy cattle.

1. The veterinarian's primary responsibility to the client is to help design management, immunization, housing and nutritional programs that will reduce the incidence of disease and the need for antimicrobials.
2. Antimicrobials should be used only within the confines of a valid veterinarian-client-patient relationship; this includes both dispensing and issuance of prescriptions.
3. Veterinarians should properly select and use antimicrobial drugs.
 - a. Veterinarians should participate in continuing education programs that include therapeutics and emerging and/or development of antimicrobial resistance.
 - b. The veterinarian should have strong clinical evidence of the identity of the pathogen causing the disease, based upon clinical signs, history, necropsy examination, laboratory data and past experience.
 - c. The antimicrobial selected should be appropriate for the target organism and should be administered at a dosage and route that are likely to achieve effective levels in the target organ.
 - d. Product choices and regimens should be based on available laboratory and package insert information, additional data in the literature, and consideration of the pharmacokinetics and pharmacodynamics of the drug.
 - e. Antimicrobials should be used with specific clinical outcome(s) in mind, such as fever reduction, return of mastitic milk to normal, or to reduce shedding, contagion and recurrence of disease.
 - f. Periodically monitor herd pathogen susceptibility and therapeutic response, especially for routine therapy such as dry cow intramammary antibiotics, to detect changes in microbial susceptibility and to evaluate antimicrobial selections.
 - g. Use products that have the narrowest spectrum of activity and known efficacy *in vivo* against the pathogen causing the disease problem.**
 - h. Antimicrobials should be used at a dosage appropriate for the condition treated for as short a period of time as reasonable, i.e., therapy should be discontinued when it is apparent that the immune system can manage the disease, reduce pathogen shedding and minimize recurrence of clinical disease or development of the carrier state.
 - i. Antimicrobials of lesser importance in human medicine should be used in preference to newer generation drugs that may be in the same class as drugs currently used in humans if this can be achieved while protecting the health and safety of the animals.
 - j. Antimicrobials labeled for use for treating the condition diagnosed should be used whenever possible. The label, dose, route, frequency and duration should be followed whenever possible.
 - k. Antimicrobials should be used extra-label only within the provisions contained within AMDUCA regulations.
 - l. Compounding of antimicrobial formulations should be avoided.
 - m. When appropriate, local therapy is preferred over systemic therapy.
 - n. Treatment of chronic cases or those with a poor chance of recovery should be avoided. Chronic cases should be removed or isolated from the remainder of the herd.
 - o. Combination antimicrobial therapy should be discouraged unless there is information to show an increase in efficacy or suppression of resistance development for the target organism.
 - p. Prophylactic or metaphylactic use of antimicrobials should be based on a group, source or production unit evaluation rather than being utilized as standard practice.
 - q. Drug integrity should be protected through proper handling, storage and observation of the expiration date.
4. Veterinarians should endeavor to ensure proper on-farm drug use.
 - a. Prescription or dispensed drug quantities should be appropriate to the production-unit size and expected need so that stockpiling of antimicrobials on the farm is avoided.
 - b. The veterinarian should train farm personnel who use antimicrobials on indications, dosages, withdrawal times, route of administration, injection site precautions, storage, handling, record keeping and accurate diagnosis of common diseases. The veterinarian should ensure that labels are accurate to instruct farm personnel on the correct use of antimicrobials.
 - c. Veterinarians are encouraged to provide written guidelines to clients whenever possible to describe conditions and instructions for antimicrobial use on the farm or unit.