

infection can frequently be closely estimated by learning the date when negative animals were introduced into a herd with high antibody prevalence. (If the only negative animal in a herd was purchased on March 1, then you assume the last herd infection occurred and subsided before that date.) Selecting four or five animals from a herd can frequently give an estimate of herd antibody prevalence, but caution must be used in extrapolation of a small sample to the entire herd.

APPENDIX A

Colostrally-Acquired Passive Immunity

*Unlike human infants which acquire the immune status of the mother by the transplacental route, a calf is born without serum antibody unless it has experienced a prenatal infection. Antibody is concentrated in the colostrum and if the calf nurses immediately after birth it ingests antibodies which reach the bloodstream after absorption through the gastro-intestinal tract. The calf then has an immune status similar to the dam. The concentration of antibody in the cow's milk declines rapidly following parturition and the *calf loses its ability to absorb antibodies shortly after birth*. Therefore, the calf acquires all the maternal antibody it will ever get during the first day of life. If a calf fails to nurse and is not fed colostrum immediately after birth, it will be vulnerable to numerous infections. The colostrally acquired immunity is steadily dissipated by metabolic processes at a rate that is fairly uniform among calves. Therefore, the time interval between ingestion of colostrum and the loss of passive

immunity is determined largely by the amount of serum antibody the calf accumulates in that crucial first day of life. Calves with the higher initial titers will retain passive immunity for a longer time than calves with lower initial titers. Some people erroneously believe that the calf is immune only as long as it nurses its dam and that passive immunity is lost at the time of weaning. Some calves are weaned about the time their colostrally-acquired maternal antibody has diminished, but this is a coincidence. The disease implications of weaning of beef cattle are related to stress, dietary change and communicable disease transmitted when many susceptible calves are aggregated or shipped. The fact that weaned calves are no longer nursing has no effect on their serum antibody status.

Summary

Serologic tests for IBR, BVD-MD and BPI-3 sometimes aid in the differential diagnosis and sometimes only mislead the person who submitted the specimens. When negative, these tests can be useful in the diagnostic "process of elimination." Efforts to obtain a *positive* etiologic diagnosis are frequently frustrating. The relationship between the time of infection and the time of serum collection is a critical factor in the interpretation of test results. Because the time of infection is usually unknown, paired samples are essential. The aseptic specimens needed for virus serology should be collected in B-D Vacutainers. Antibodies induced by natural infection cannot be distinguished from antibodies induced by vaccination or from colostrally acquired maternal antibodies.

The Role of the Feedlot Veterinarian

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While the growth of the feeding industry during the past few years has been the most spectacular in all of agriculture, little anticipation has been shown for the complexities of the health problems being generated. Antiquated methods of market assembly, crowding, and casual shipment over long distances to unsanitary and inadequately sheltered quarters have created health hazards peculiarly defiant of rational management by means other than complete reorganization of the system. Faced with the here and now of huge masses of sick cattle, the veterinary medical profession was still in the talking stage about the need for trained technical assistants. The feeding industry therefore

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settled for availability, and the most available labor source was "the screw worm program eradicated cowboy." Experienced in catching and holding and "doctoring," any who showed a lingering childhood fascination for playing doctor on a grander scale became "feedlot vets" almost overnight. They were quickly dazzled by the huge armamentarium of the modern veterinarian, all eagerly pressed upon them by the zeal of merchandising. Some few veterinarians, many of them representing drug interests, and a newly mobilized army of drug salesmen competed and collaborated in shaping this rabble into the first line of defense against the onslaught of cattle

diseases. The cattlemen generally took the position that modern drugs were so potent and encompassing that they had only to be given. By what rationale and under what conditions of sanitation these miracle drugs and vaccines were to be administered, it was hoped the cowboys could learn by having the salesmen detail them from the labels. Diagnosis was of concern only when and if the "regular treatment" failed gigantically. Moderate failure was to be established as the norm, and a tolerable loss level built into the economy. Segments of the veterinary profession came into action only when disaster threatened. That such a program has been successful even to a limited extent is primarily to be credited to that fact that most of the world's worse cattle scourges had previously been eradicated from the country, the principal exception being the respiratory disease complex.

This being the established norm in feedlot health blundering today, getting involved in it now is to many veterinarians about as appealing as plunging into the Vietnam war would be. Yet there are veterinarians to whom the potential is attractive, and those who have been in the forefront of involvement from the beginning are calling for reinforcement. Feedlot cattlemen hardly seem aware of how much they owe those few who have established foundations strong enough even to support most of the abuses piled upon them. Forces are, however, building toward ever more efficiency in production, and the most obvious area for achievement is health. Veterinary service can certainly be expanded and developed into a more directly applicable force. The more progressive operations have already discovered benefits to be derived from veterinary services, and yet a pattern of involvement has not been so well charted as to draw in the veterinarian readily. Uncertainties as to capabilities, opportunities, and expectations persist in both industry and profession, as each warily tests the other.

To begin with, the feedlot manager is finding that the veterinarian seldom called is seldom able to provide effective service. The problems encountered are apt to be out of context with his experience. If he is unfamiliar with the day to day complexities, it is a near impossibility to recognize what might be perfectly obvious in a familiar setting. This means that to be effective he must be a part of the management team, responsible for health personnel, drug and vaccine purchases, procedural plans, records, sanitation, shelter, traffic, quarantine and everything else related to the health of the cattle. He should program all

immunizations, treatments and surgical procedures based upon definable criteria.

At a time when there is good reason to suspect that over half the actual death loss is directly attributable to lack of expertise in drug administration and cattle handling, teaching and coaching the cowboys in detection of sickness, handling cattle, keeping records, administering medication, and all the other activities of their art will take the most of his time. As certain ones of them develop proficiency, he will delegate areas of responsibility, always recognizing and encouraging achievement and bolstering morale in an effort to check the nomadic proclivities of the cowboys, who do seem less prone to drift when veterinarians are present to challenge their interest and champion their progress.

Every facet of the feedlot operation may be reflected as a health problem or a warning. Consequently, the veterinarian should attend all staff conferences in order to weigh all evidence in addition to his own observations of sick and dead animals so that anything out of context may be recognized and compensated for without delay.

To attract and realize the advantages of veterinary services, feedlots need to add certain minimum physical facilities not traditional to their planning. The central or primary hospital facility should include, in addition to the usual sheltered treatment chute, adequate lighting, impervious flooring with a drain, a necropsy room with an overhead rail; and a laboratory workbench with utility connections, autoclave, refrigerator, incubator, and such other equipment as the veterinarian may need to sterilize equipment and conduct field examinations and sensitivity tests. Plenty of electric outlets would enable the veterinarian to set up on a temporary basis such portable equipment as microscope, centrifuge and other equipment not likely to be needed in his absence, unless he were a full-time manager. When one considers that many of the larger lots average a daily death loss of over five hundred dollars, the cost of an adequate facility should be quickly regained, as would all other costs.

The veterinary profession stands ready to provide service where the demand is, but it has been remarkably reluctant to promote demand or to educate prospective clients on their own responsibilities toward realization of the potential in veterinary medicine. There is nowhere a more significant potential client than the custom feedlot will be as soon as the various cattle feeders insist that it assume real responsibility for the health of its wards. The large feedlots owning their own cattle are pioneering the utilization of

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THE ROLE OF THE FEEDLOT VETERINARIAN

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professional veterinary medicine and once their results become the goal of the industry, the demand for veterinarians will again rock the profession. With over half the industry's multimillion dollar loss from death and chronic poor health following treatment directly attributable to laryngo-pharyngeal trauma, peritonitis, abscesses and foreign body pneumonia produced by inexpert techniques or grossly careless sanitation, there may even be a realization of the need for at least close professional supervision at the treatment chutes. A very real danger lies in the inadequacy of the profession to meet this challenge again, without deliberate anticipation and action.

REPRODUCTIVE SOUNDNESS IN BEEF BULLS

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