ISSN: 0976-822X

Available online on www.ijcpr.com

International Journal of Current Pharmaceutical Review and Research 2018; 10(1); 19-22

Review Article

HYGIENIC AND VACCINATION MANAGEMENT TO IMPROVE THE CATTLE HERD HEALTH AND GROWTH

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Received: 30-12-2017 / Revised: 20-01-2018 / Accepted: 30-01-2018
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Conflict of interest: Nil

Abstract

Immunologic defence against economically significant livestock illnesses is provided through vaccines. When vaccinations are administered at the wrong time, recipients are immunosuppressed, and/or the infectious challenge is higher than the immunologic protection provided by immunisation, vaccine efficacy may not be realised. Because there are few randomised, controlled field trials that assess vaccine effectiveness and some vaccination practises flout vaccine label instructions, vaccine recommendations for cattle sometimes rely on anecdotal evidence and tradition rather than scientific data. Veterinarians should take into account recent studies comparing the effectiveness of on-arrival vs delayed immunisation in freshly acquired stocker and feedlot animals observed in the field. Additionally, when two or more gram-negative bacterins are supplied simultaneously, the danger of endotoxicity increases, thus veterinarians and producers should avoid endotoxin stacking.

Keywords: Planning for animal health, management of vaccinations, advisors, extension services.

Introduction

Maintaining optimal health and growth in cattle herds is essential for maximizing productivity and profitability in the livestock industry. Hygienic practices and strategic vaccination management play crucial roles in preventing the spread of diseases, reducing morbidity and mortality rates, and ensuring the overall well-being of the herd. This article explores the significance of hygienic practices and vaccination management in improving cattle herd health and growth.

Importance of Hygienic Practices:

A.Clean and Sanitary Environment: Providing a clean and sanitary environment is crucial to minimize disease transmission. Regular cleaning of barns, pastures, and water sources helps reduce the risk of infections and parasites.

B.Proper Waste Management: Implementing effective waste management strategies, such as proper manure disposal and regular cleaning of feeding and watering equipment, prevents the buildup of pathogens and reduces disease incidence.

C. Biosecurity Measures: Implementing biosecurity protocols, such as controlling visitor access, quarantining new animals, and disinfecting equipment, helps prevent the introduction and spread of diseases within the herd.

Vaccine Efficacy Versus Efficiency:

Awareness of vaccination management requires an awareness of the difference

between vaccine effectiveness and efficiency. Commercial vaccines that have passed the USDA's clearance requirements for biologics may not always be effective in all vaccination recipients or in the production setting. The percentage reduction in disease incidence and pathology in a group of vaccine recipients compared to a control group is known as vaccine effectiveness. A controlled BRD challenge paradigm using vaccinated and unvaccinated calves that have been exposed to a respiratory virus and bacterium often serves as the basis for this conclusion. A vaccination may also be deemed effective if it produces an aggressive immune response to the vaccine's components and exhibits biological activity. The capacity of a vaccination to enhance immunity is one way to describe vaccine efficacy.

Effective vaccination results in a considerable decrease in clinical sickness and/or mortality losses, an improvement in weight growth, and a definite financial benefit in commercial cattle production. Although bovine vaccinations must show efficacy in order to be approved by the USDA, farmers are more concerned with the vaccine's performance in the field. It's vital to remember that vaccination effectiveness and efficiency are always related, however effectiveness is not a guarantee of efficiency.

Vaccination Management:

A.Understanding Vaccines: Vaccination is a proactive approach to protect cattle against infectious diseases. Familiarity with vaccine types, schedules, and administration methods is essential for effective vaccination management.

B.Consultation with Veterinarians: Consulting with veterinarians allows for tailored vaccination programs based on the herd's specific needs, geographic location, and disease prevalence. They can guide in selecting appropriate vaccines and establishing vaccination protocols.

C.Core and Optional Vaccinations: Administering core vaccines, which protect against common and highly contagious diseases, is essential. Optional vaccines may be required based on the herd's risk factors and geographical location.

D.Timing and Booster Shots: Following recommended vaccination schedules and ensuring timely booster shots enhance the vaccine's effectiveness and provide long-term immunity.

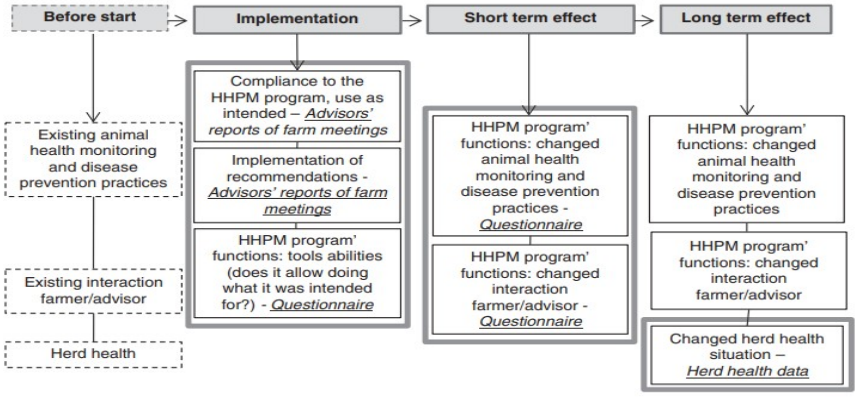

Figure 1: Framework for process evaluation

Vaccine Safety:

Vaccine safety is vital to ensuring the efficiency of a vaccine. The safety of a vaccine may be compromised by several factors including the following:

•Improper time of administration of vaccine, such as during acute infection with wild-type virus and concurrent administration of MLV vaccine or in otherwise unhealthy animals.
•Improper storage and/or handling of vaccine (ie, temperature, UV light, excessive shaking, expiration).
•Disrupted physiologic and immunologic status of cattle being vaccinated.
•Manufacturing errors that may compromise safety of a particular lot group of vaccine.

Stress And Vaccine Efficiency:

The hypothalamic-pituitary-adrenal axis is stimulated by stress, which may be classified into two types: Acute stress, or stress that lasts less than 24 hours and Chronic stress, which develops when an animal is subjected to a stressor for several days or even weeks.

The difference in effects between acute and chronic stress on vaccination response explains the significance of this disparity. Acute stress is thought to be able to boost immunity and may even enhance the immunological response to vaccination, however chronic stress is known to suppress the humoral immune response to vaccination. In study, these phenomena are challenging to assess, and the bovine model is rarely used to investigate them.

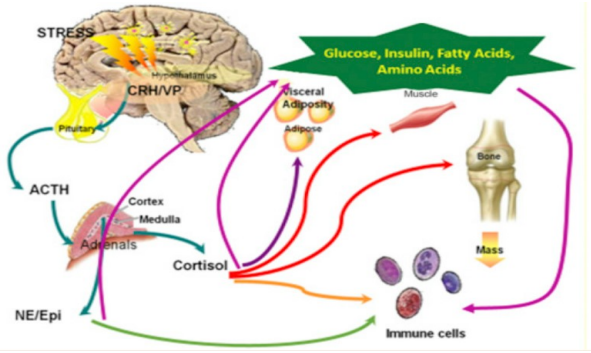

Figure 2: Stress Axis and Immune Function

Benefits of Hygienic Practices and Vaccination Management:

A. Disease Prevention: By practicing good hygiene and implementing vaccination programs, the risk of disease transmission within the herd is significantly reduced, minimizing the occurrence of illness and preventing economic losses.

B. Improved Growth and Production: Healthy cattle experience enhanced growth rates and improved feed efficiency. Optimal herd health results in better weight gains, increased milk production, and improved reproductive performance, contributing to overall profitability.

C. Cost Savings: Investing in hygienic practices and vaccination management reduces the need for costly treatments and veterinary interventions. Preventing diseases through proactive measures is more cost-effective than treating sick animals.

D. Enhanced Herd Resilience: Well-managed herds with high vaccination coverage are more resilient to disease outbreaks. This ensures herd continuity and minimizes disruptions in production.

Conclusion:

Maintaining cattle herd health and promoting growth relies on hygienic practices and effective vaccination management. A clean environment, proper waste management, and biosecurity measures reduce disease transmission risks. Strategic vaccination programs, in consultation with veterinarians, provide crucial protection against infectious diseases. By prioritizing these practices, livestock producers can optimize cattle herd health, enhance growth rates, and maximize profitability in the long run.

References

1. Dhuyvetter K.C., Bryan A.M., Blasi D.A. Case study: preconditioning beef calves: are expected premiums

sufficient to justify the practice? Prof Anim Sci. 2005; 21:502–514.
2. Hilton W.M., Olynk N.J. Profitability of preconditioning: lessons learned from an 11-year case study of an Indiana beef herd. Bov Pract (Stillwater) 2011; 45:40–50.
3. Richeson J.T., Beck P.A., Gadberry M.S. Effects of on-arrival versus delayed modified live virus vaccination on health, performance, and serum infectious bovine rhinotracheitis titers of newly received beef calves. J Anim Sci. 2008; 86:999–1005.
4. Waters E, Hall BJ, Armstrong R, Doyle J, Pettman TL and De Silva-Sanigorski A 2011. Essential components of public health evidence reviews: capturing intervention complexity, implementation, economics and equity. Journal of Public Health 33, 462–465.
5. Janz NK and Becker MH 1984. The health belief model: a decade later. Health Education Quarterly 11, 1–47.
6. Green MJ, Leach KA, Breen JE, Green LE and Bradley AJ 2007. National intervention study of mastitis control in dairy herds in England and Wales. Veterinary Record 160, 287–293.
7. Terrell SP, Thomson DU, Wileman BW, et al. A survey to describe current feeder cattle health and well-being program recommendations made by feedlot veterinary consultants in the United States and Canada. Bov Pract (Stillwater) 2011; 45:140–8.
8. Taylor JD, Fulton RW, Lehenbauer TW, et al. The epidemiology of bovine respiratory disease: what is the evidence for predisposing factors. Can Vet J 2010;51: 1095–102.
9. Brand A, Noordhuizen JPTM and Schukken YH 2001. Herd Health and Production Management in dairy practice. Wageningen Academic Publishers, Wageningen, The Netherlands.
10. Beekhuis-Gibbon L, Devitt C, Whyte P, O'Grady L, More SJ, Redmond B and Doherty ML 2011. A HACCP-based approach to mastitis control in dairy herds. Part 2: implementation and evaluation. Irish Veterinary Journal 64, 7.