Feedlot Medicine/Vaccination of Incoming Cattle

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Cattle of uncertain vaccination status, unknown exposure history, and usually in the incubation, subclinical or clinical phases of various viral and bacterial infections arrive at feedlots stressed by movements, reassembly and dietary changes. Respiratory disease constitutes about 85% of feedlot health problems. Despite major advances in vaccines and antibiotic drugs, respiratory infections have not been markedly reduced, and no final solution to feedlot pneumonias and their predisposing causes has been achieved. Thus, procedures for vaccinating the incoming calf are controversial, confusing, and to a large extent based on anecdotal and imperical arguments.

Currently there is no scientific basis for feedlot vaccination guidelines. Procedures that appear beneficial in one veterinarian's hands fail for others. Nonetheless certain recommendations with scientific validity can be presented to help reduce discomfort, disease and death, increase profitability of feedlot operations and enhance the credibility of the recommending veterinarian. Specific recommendations should evolve from certain fundamental concepts.

Any vaccination recommendations should be based on a substantative veterinarian-client-patient relationship in which the DVM is frequently present and familiar with the operation and is available on short notice if needed. The recommending DVM should be personally familiar with products, their manufacturer and their indications and contraindications, should have read the product literature and kept all recommendations within the boundaries therein imposed. Only federally licensed products should be recommended. Veterinarians should avoid unwarranted or exaggerated claims for vaccines, use sterile equipment, observe withdrawal times and contraindications, and follow recommendations for repeated vaccinations. Conflicts between profit-motive and personal integrity should be resolved on the basis that the veterinarian's professional credibility is his most valuable possession. At all costs, the temptation to don the title of expert must be avoided unless formal training, documented accomplishments, public acclamation, and published contributions to literature in the field clearly establishes knowledge, skills, experience, and competency exceeding that of other feedlot veterinarians.

Rapidly advancing technology emphasizes the last admonition. Veterinary immunology is advancing rapidly. Established dogma are being negated and new fundamental principles evolve every year. There are new viruses, new bacteria, new explanations as to how and why they cause disease and how the body fights them. But surprisingly, there are few permanent solutions. New vaccines, with newly associated hazards are continually appearing. There are subunit vaccines on the horizon. These carry only essential antigenic moieties and are being prepared by detergent cleavage of microbes, by biochemical synthesis, and by genetically engineering bacteria to produce chemically specific antigens. Today's vaccine industry is in such a state of flux that the self-proclaimed expert of today can be obsolete tomorrow.

Confusion as to who regulates veterinary biologics has set the stage for uncontrolled vaccine production. This can take advantage of the naivete of the US consumer who assumes anything labeled and sold must be pure, potent, safe and effective. Not so, those days are gone - at least temporarily - and veterinarians are leading the parade of suckers, putting their personal integrity and professional credibility on the line, grasping at straws to solve feedlot problems rooted in the marketing system and in the biologic reality that physiologic and emotional stress cannot be overcome with vaccines.

Before discussing vaccinations, let's address the question of incoming cattle showing clinical signs. If they can't be refused and returned, they should be treated but not vaccinated. They should be regarded as signals that their mates are likely incubating and carrying infections, probably immunologically compromised and deserving of special consideration. This includes avoiding any modified live virus (MLV) vaccines particularly bovine virus diarrhea (BVD) - intramuscular infectious bovine rhinotracheitis (IBR) and probably bovine respiratory syncytial virus (BRSV). Probably no live vaccines make sense in this scenario. At best intranasal (IN) IBR-parainfluenza-3 (PI-3) should be used.

Inactivated viral vaccines for IBR, BVD, and PI-3 and pasteurella and hemophilus bacterins all deserve consideration for the sick arrival. However, need for treatments, and prognostic and economic considerations must be overriding factors in this decision, and usually these form the decision not to vaccinate.

For the apparently healthy arriving calf, pasteurella and hemophilus bacterins deserve serious consideration. Probably two doses are needed. I would choose IN IBR-PI-3, but where restraint or logistic limitations prohibit IN inoculation, the intramuscular products are recommended. Current thinking suggests bovine respiratory syncytial virus (BRSV) be added. If BVD vaccination is indicated, only

inactivated products should be used in feedlots.

Immediate vaccination on arrival appears most logical. The value of that first MLV dose far exceeds the potential value of a second (booster) vaccinations. Boosters are contraversial, but can partially protect calves which failed to respond (for whatever reason) to the first. The amount of actual increased specific immunologic stimulation achieved by "boosters" in feedlots is questionable.

Whatever approach the feedlot veterinarian uses for the incoming calf, he should not expect miracles and should be sure quality licensed products are used in a professionally creditable manner.

Questions & Answers:

Question: Is there a difference in the adult breeding bull and the feedlot steer?

Answer: There are sometimes, and I definitely think we see a difference. And I can't scientifically explain it to you. I think we are much more likely to see ureter obstructions or stones in the kidneys in the adult breeding bull than we are in the feedlot steer. And I can't tell you why there is that difference but I can tell you that that is something I even warn owners about. In the breeding bull, if you cut out a stone, and they want to keep him as a breeding bull, so we're not doing this, they are very likely to pass another one. They are very likely at post mortem to have multiple stones in ureters in the kidneys. In feedlot steers I can't give you an exact percentage, but I would say I think the percentage is below 10%.

Question: What is the value of BUN level?

Answer: As far as a prognosticator goes? He says he has been using BUNs as far as the prognostic value before going ahead. I don't think that has any indication as to whether they had a stone in the ureter as much as it does maybe how plugged up they are and how much potential hydronephrosis we have due to the back pressure on those kidneys. But I think it is worthwhile.

Comment: (inaudible)

Answer: Exactly. A very excellent point. If you haven't got a functional kidney because there is too much back pressure, why proceed. I would agree.

Question: What about giving these calves ammonium chloride as capsules?

Answer: Certainly it has been used as a feed additive over the years. We have done a little bit, and I don't know if you would call it a clinical trial, and I'll tell you at least for the sensitivity on a pH stick the ammonium chloride doesn't change the pH of the urine one bit. Now we'll go a little bit further and say that in every case I have I use it.

Question: What is your cutoff on the BUN if you're using the sticks for the BUN?

Answer: About 60 as near as I can approximate it. Where I've got the access to the lab I always figure over a hundred it begins to get a little shakey. For those of you who couldn't hear, he said that if they seem stiff in the rear legs and have difficulty in walking back, that is also a reliable prognostic sign and don't even do surgery on those.