Shipping Fever Prophylaxis:

SHIPPING FEVER INCIDENCE AND WEIGHT GAIN FOLLOWING TWO APPROACHES TO VACCINATION

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Introduction

Respiratory disease problems are and have been a constant menace to the cattle industry (1, 2, 5) and repeated promises of vaccines that would eliminate this problem have been made (3, 11).

The isolation of a virus from an acute respiratory condition in cattle resulted in a renewed enthusiasm for potential biological prevention for bovine respiratory diseases (6).

Repeated investigations under applicable ranch and feedlot conditions have provided no valid evidence of benefits from the numerous viral vaccines as a means of preventing the respiratory problems in cattle (4, 7, 8, 9). In addition to disease prevention, it has been suggested that increased weight gains would be observed for vaccinated cattle versus unvaccinated cattle (10). In some instances, this has been reported (12).

Experimental Procedure

This investigation was undertaken to evaluate the prophylactic value of two shipping fever vaccines and the possible benefits of vaccination as related to weight gains and respiratory disease prevention.

This investigation involved 437 range-raised calves from a herd where the husbandry included performance testing, castration and dehorning at two months of age, a grub control program, and vaccination for blackleg and malignant edema. The calves were rounded-up, weighed, graded and primary vaccination for shipping fever made at least three weeks prior to the secondary vaccination and final weaning. The calves were randomly divided into three groups: controls (130), those receiving a living PI-3 and IBR* vaccine plus two pasteurella bacterins** (RP-vaccine) (174 calves), and those receiving a killed PI-3*** vaccine plus two pasteurella bacterins** (BP vaccine) (133 calves). All vaccinations were made twice at three-week intervals with the final administration on the day of weaning.

Upon weaning, all calves were moved into a feedlot environment on the ranch where they had been raised (acclimatization). The feedlot had a well-bedded shelter, feedbunks and water tanks. Native range hay was available free choice. Small quantities of supplement were provided in the

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*Rea-Plex, Fort Dodge Laboratories, Fort Dodge, Iowa
**Septobac, Fort Dodge Laboratories, Fort Dodge, Iowa
***Bar-3, Eli Lilly Company, Greenfield, Indiana

Table 1. Weight Gains During Acclimatization Period

Treatment	Ave. initial wt. (lbs.) weight range	Weight Gain/Day heifers weight no.	Weight Gain/Day steers weight no.	Average daily gain	Total number
RP-Vaccine	408.0 64	0.624 93	0.780 81	0.697	174
BP-Vaccine	460.0 62.5	0.619 43	0.768 90	0.720	133
Controls	448.0 61.0	0.501 75	0.842 55	0.645	130

bunks. The calves remained in this environment for about three weeks.

Results

During the acclimatization period, 14 controls, five BP and seven RP calves required medication for respiratory problems. All responded to penicillin and streptomycin medication. Weight gains during the acclimatization period are recorded in Table I.

One commercial feedlot in Iowa received 160 head of the acclimatized calves. During the first 30 days, three controls, three RP calves (one died) and one BP calf required medication. During the next 30 days, no respiratory problems were encountered. The feeder reported purchasing additional calves that were taken directly from the cow to his feedlot. Respiratory symptoms were prominent in nearly all of the calves approximately five days after arrival, and medication was required for at least 20 head.

The balance of the acclimatized calves were moved to a nearby feedlot in North Dakota and were under the supervision of an experienced feeder. Calves from another source were also present in this feedlot. Sporadic respiratory problems were encountered in all calves from arrival on Dec. 4 to Feb. 11. This included one control, five BP and two RP calves.

On February 12, the owner reported that there appeared to be an increasing incidence of pink eye. Upon examination, it was disclosed that approximately 90 per cent of the calves in all pens were involved and that the pink eye was usually accompanied by a dry, raspy cough and varying degrees of labored breathing. Involved animals were examined and elevated temperatures were recorded. The agent for IBR was isolated from the nasal and lacrimal secretions of four calves, all of which had been vaccinated with the RP vaccine. Various approaches to medication were utilized and only one death loss was recorded.

Discussion

Observations made under the conditions of this investigation would indicate that there were no consistent demonstrable increased weight gains of vaccinated cattle as compared to comparable unvaccinated calves under identical environmental and management conditions.

Clinical symptoms severe enough to warrant medication were observed during the acclimatization period and after the calves were placed into the feedlot environment. These included 14 per cent of the controls, nine per cent of the calves receiving BP vaccines, and six per cent of the RP vaccinates. It would appear that either vaccination approach used provided some protection up to February 11 (approximately 14 weeks), after which vaccination apparently no longer provided any resistance to the clinical respiratory infections. The incidence of clinical respiratory infections for each investigational group was variable for each of the different environments involved.

Table 2. Summary of Number of Calves Exhibiting Clinical Signs of Shipping Fever

	Acclimatization period at ranch	Feed-lot environment
Controls	14/130	4/130
BP Calves	5/133	6/133
RP Calves	7/174	5/174

The data collected in this trial indicate that respiratory vaccines administered under optimum conditions afford the calf little protection against respiratory disease.

Calves acclimatized to the feedlot environment previous to commitment to a permanent feedlot were apparently less subject to the shipping fever syndrome whether vaccinated or unvaccinated.

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