Evaluation of Alternate Year Vaccination Practices in a Cow-Calf Herd

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Introduction

Yearly vaccination of cow herds for reproductive diseases is the norm in US cattle industry. There has been controversy throughout veterinary medicine about vaccination of animals. Theoretically, a single dose of modified live vaccine has been claimed to give life-long immunity. Because there have not been multiple year duration studies in cattle, the long-term efficacy of cow vaccinations has been difficult to assess. In this study we divided a 1000-cow herd into three groups: 1) vaccination every year, 2) vaccination every other year, and 3) vaccination every third year. The herd production records and serology of the herd were subsequently evaluated.

Materials and Methods

The test herd was a 1000-cow unit located in central South Dakota. The herd was divided into two units: a 400 head East Unit and a 500-600 head West Unit. Calves were kept in a retained ownership program. Heifers were all vaccinated prior to entering the herd with at least two doses of a combination modified live virus-killed bacterin vaccine (Preg Guard 9: IBR, BVDV type 1, and PI3(MLV); leptospirosis; *Campylobacter fetus*). Prior to 1998, all cows were vaccinated annually with Preg-guard 9 or Herd-Vac 9, anthrax and E.coli-Clostridial vaccines. The study began in June 1998 when one-third of the herd was vaccinated with Preg-Guard 9 (Group 1). In June 1999, Group 1 (annual vaccination) and Group 2 (bi-annual vaccination) were vaccinated. In June 2000, Group 1 (annual vaccination) and Group 3 (vaccination every 3rd year) were vaccinated. Production data was collected using the Cow Calf 5 Record System. Standard Performance Analysis (SPA) was conducted with pregnancy rate, calving rate, birth weight, calf death loss, weaning rate, weaning weight, body conditioning scores and morbidity/mortality. Random blood samples were collected from the cow herd in June prior to each vaccination and from all cows culled from the herd. Serum was tested for the level of BRSV, BVDV 1 & 2, and IBR antibodies using serum neutralization tests at the Animal Disease Research and Diagnostic Laboratory (ADRDL), South Dakota State University. Samples from aborted fetuses were submitted to the ADRDL for diagnosis.

Results and Conclusions

Abortions increased from 1.5% in cows vaccinated annually to 2.2% in those vaccinated in alternate years, and the calf death rate increased from 3.2% to 5.1%. There was no difference in conception rate, birth weight or weaning weight. Serology indicated that there was an increase in BVDV type 2 titers in the West Herd in 1999, but not in the East Herd. This would indicate exposure to field virus in the west herd. We are currently analyzing all the data through 2001 to determine any additional patterns. These results indicate that vaccination with modified live virus requires yearly boosters.