THE IMPACT OF ONSET 5 INTRANASAL VACCINE ON DAIRY CALF HEALTH AND PERFORMANCE
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TAKE HOME MESSAGES

- No differences in two intranasal treatments were measured on calf performance and health.
- Calves were not disease challenged and health was excellent in both heifer calf treatments.

INTRODUCTION
Historically, intranasal vaccines have been the desired choice for newborn calves to provide immunity in addition to that gained by the colostrum. Intranasal vaccines are desirable because they more closely mirror the route of real world infections and can allow for a more rapid immune response. The response can be more rapid because the vaccine is delivered straight to the mucosal surfaces rather than taking a systemic route. Also, delivery to the mucosal surfaces has been shown to be an effective way to avoid interference of maternal antibodies in the calf. Maternal antibodies from the cow’s milk can prevent an immune response to a vaccine, preventing the protection the vaccine should provide.

MATERIALS AND METHODS
The purpose of this project was to determine the effectiveness of Onset 5 IN, an intranasal vaccine by Intervet/ Schering-Plough, on young calves by comparing it to TSV 2, an intranasal vaccine by Pfizer. Onset 5 is a newly introduced vaccine that contains the following five viral strains: Bovine Viral Diarrhea (BVD) types I & II, Bovine Respiratory Syncytial Virus (BRSV), Parainfluenza-3 (PI3), and Infectious Bovine Rhinotracheitis (IBR). TSV 2 is a widely accepted, commonly used vaccine that contains the following two viral strains: PI3 and IBR. TSV 2 was used as the control because a negative control was undesirable as the calves used were being custom raised and not owned outright. Eighty-two head from two different farms were used in the study with 46 head from farm 1 and 36 head from farm 2. Female calves were assigned to the TSV 2 or Onset 5 vaccine treatment by taking every other calf. The calves were started in the study as they were born and picked up from the dairies. When a group came in, they were weighed and were given the intranasal vaccine that they were assigned. The 82 head were started over a 17 day period and were divided into two groups, with the first 39 head put in the first group and the remaining 43 head put in the second group. Any changes to the conditions such as starting grain, stopping milk medication, increasing the amount of milk fed, and weighing out was started with the first group a week before the second group. This was done in an attempt to equalize the amount of time that calves had access to the same conditions. Scour scores, respiratory scores, and treatment records were kept daily. Grain intake was measured once a week beginning when each group was started on grain. Each calf was weighed at the
close of the study. The following 4-point scale was used for the scour scores: 1- firm, well formed (not hard), 2-soft pudding-like, 3-runny, pancake batter, and 4-liquid, splatters. A more subjective 4-point scale based on coughing, snotty nose, and labored breathing was used for respiratory scoring. The length of time that each calf from group 1 was in the study ranged from 44 to 51 days, while the length of time that each calf from group 2 was in the study ranged from 42 to 49 days.

RESULTS AND DISCUSSION

No significant differences (P > 0.05) were found between the Onset 5 vaccine and the TSV 2 vaccine for any of the measurements taken. Health and performance variables analyzed included average daily gain between starting and ending weights, maximum daily scour score, respiratory score, grain intake, and drug administration. Although differences between vaccines were not significant, variability did exist among the three factor interaction of farm, group, and vaccine treatment for average daily gain (Graph 1) and maximum scour score (Graph 2). Within the first group of calves, those from farm 2 receiving the TSV 2 vaccine had the greatest ADG. Within the second group of calves, those from farm 2 receiving the Onset 5 vaccine had the greatest ADG. Calves from farm 1 also had a switch between groups on which vaccine had greater ADG. Maximum scour score had similar variability among groups, farms, and vaccines. Over all, there was little difference in effectiveness between Onset 5 and TSV 2. For a better indicator of effectiveness, a group untreated with any intranasal vaccine should have been used, but this was prohibitive because of ownership as stated above.

![Graph 1: Comparison of Average Daily Gains (ADG)](image-url)

Standard errors of the means for ADG ranged from .04 to .08 lbs/day.
Graph 2  Comparison of Maximum Scour Scores

Standard errors of the mean for maximum scour score ranged from .24 to .41.