

Effects of Prophylactic Administration of a Nonspecific Immune Stimulant on the Performance of Hutch-Reared Calves

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Introduction

A 75-day study was conducted in 400 beef-production, Holstein-cross calves to determine the effects of administering a single dose of a nonspecific, mycobacterial cell wall fraction immunotherapeutic (Immunoboost[®], Vetrepharm, Georgia, U.S.A.) via various routes within the first 24 hours of life.

Materials and Methods

Calves were collected daily, over three weeks, from dairies in southern California and block-randomized into four groups: A) 1 mL Immunoboost[®] intravenously; B) 1 mL intramuscularly; C) 1 mL subcutaneously; D) untreated controls.

Hutch housing, feeding and handling were the same for all groups. Calves were evaluated twice daily by experienced farm staff workers who were unaware of the treatment groups. Calves were individually weighed on days zero and 75. Deaths, sick days and treatment costs were recorded for all animals. Average daily gain per calf, for the groups were: A) 1.01 lb (458

g); B) 1.07 lb (485g); C) 1.07 lb (485g); D) 0.92 lb (417g). Groups A, B and C were significantly different from D (ANOVA $p < 0.01$).

Overall deaths were low, and demonstrated no significant differences between groups (Chi-square $p > 0.05$). Treatment days and costs per calf were: A) 4.48 days (US\$4.79); B) 4.31 days (\$4.51); C) 3.86 days (\$4.33); D) 4.63 days (\$5.09). Group C was statistically different from D (ANOVA $p < 0.01$).

No significant differences exist between treatment groups A, B and C. However, production advantages correspond to the method of administration of Immunoboost[®]: C (subcutaneous) > B (intramuscular) > A (intravenous).

Conclusion

Overall, administration of a prophylactic immunotherapeutic to Holstein-cross calves during the first 24 hours of life demonstrated greater daily weight gains, decreased calf treatment days, decreased treatment costs and an economic advantage over control calves.