

# The Effects of Neomycin in Milk Replacer on the Health and Performance of Dairy Calves

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The prophylactic use of oral antimicrobials is common practice in the veal and replacement heifer industry to prevent disease. However, the impacts on gut health are largely unknown. The objective of this study was to investigate the effects of oral antibiotic (neomycin) on calf health and growth. One hundred and fifty calves between 1 and 4 days of age were blocked by bodyweight (**BW**) and assigned to one of three dietary treatments ( $n = 50$  per treatment): control (**CON**: non-medicated milk replacer; **MR**), short-term antibiotic (**ST**: neomycin mixed in MR from day 1-14), or long-term antibiotic (**LT**: neomycin in MR from day 1-28). **BW** was measured weekly for 49 days, weekly fecal samples for dry matter analysis were collected weekly, and daily fecal scores (**FS**) were collected for the first 28 days. A treatment effect ( $P = 0.005$ ) was observed for **FS**, where **CON** calves experienced higher **FS** ( $0.640 \pm 0.031$ ) compared to **ST** ( $0.530 \pm 0.034$ ) and **LT** calves ( $0.409 \pm 0.034$ ). Significant differences were observed in scour days, where **CON** calves displayed longer bouts ( $P < 0.002$ ) of diarrhea ( $5.44 \pm 0.35$  days) compared to **ST** ( $3.78 \pm 0.39$  days) and **LT** calves ( $3.82 \pm 0.38$  days). At day 7, significant differences were observed in fecal dry matter ( $P = 0.003$ ), where **CON** calves experienced lower fecal dry matter ( $0.130 \pm 0.012\%$ ) than **ST** ( $0.200 \pm 0.013\%$ ) or **LT** ( $0.170 \pm 0.013\%$ ) calves. No significant differences in average daily gain ( $P = 0.475$ ;  $SEM = 0.0546$ ) were observed, suggesting that neomycin decreases the incidence and severity of diarrhea, but has no effect on growth performance.