

# An Evaluation of Tulathromycin Treatment at Post-weaning Movement on Incidence of Respiratory Disease and Growth in Commercial Dairy Calves

A.L. Stanton<sup>1</sup>, BSc. (agr); S.J. Le Blanc<sup>1</sup>, DVM, DVSc; R.T. Dingwell<sup>1</sup>, DVM, DVSc; D.F. Kelton<sup>1</sup>, DVM, PhD; S.T. Millman<sup>2</sup>, BSc (agr) PhD; K.E. Leslie<sup>1</sup>, DVM, MSc

<sup>1</sup>Department of Population Medicine, University of Guelph, Guelph, Ont. N1G 2W1

<sup>2</sup>Veterinary Diagnostic & Production Animal Medicine / Biomedical Sci., Iowa State University, Ames, IA

## Introduction

Bovine respiratory disease (BRD) is common following weaning and movement of calves from individual to group housing. If this disease occurs in the young calf, it has long term implications for the individual welfare of the calf by increasing its mortality risk and economic impacts for the farmer by increasing the time to first calving (Waltner-toews *et al*, 1986). Given the long-term consequences of this disease, an effective and easy to manage method of prevention is important for dairy calf management. Our objective is to evaluate the effects of tulathromycin administered at the time of post-weaning grouping on incidence of respiratory disease and growth in dairy calves.

## Materials and Methods

This study was conducted at a custom heifer raising facility in New York State. 1,367 weaned dairy calves were randomly assigned to receive a single injection of either 2 ml of tulathromycin (TUL) or the existing farm practice of 5 ml of oxytetracycline (TET) at the time of movement. Weights and heights were measured on all calves at arrival at the farm (2-7 days of age), at enrolment (56 days of age, SD  $\pm$  7 days), six weeks post-enrolment (97, SD  $\pm$  8.6) and at six months of age (175, SD  $\pm$  17). All disease events were recorded by trained barn staff.

## Results

The incidence of BRD was 8% and 13% in the TUL and TET groups, respectively. Controlling for source farm and enrolment cohort, calves treated with TET were 1.9 times more likely to be treated for BRD within 60 days post-enrolment than calves treated with TUL

( $P < 0.001$ ). Independent of experimental treatment, calves with non-specific fever in the two weeks before enrollment were 2.7 times more likely to have BRD than calves without fever ( $P < 0.05$ ). In calves ( $n = 1,207$ ) that were not diagnosed with non-specific fever by farm staff between birth and five weeks of age, animals treated with TUL had a 0.24 lb/d (0.11 kg/d) greater average daily gain (ADG) than TET calves ( $P < 0.001$ ). Accounting for treatment group, calves that had non-specific fever within two weeks before enrollment had a decrease in ADG of 0.24 lb/d (0.11 kg/d) ( $P < 0.01$ ). Among calves diagnosed with non-specific fever between birth and five weeks of age ( $n = 160$ ), treatment TUL or TET did not have a significant effect on ADG. Separate from the effect of experimental treatment, diagnosis of BRD within 60 days post-enrollment decreased ADG by 0.44 lb/d (0.2 kg/d). In a univariate analysis of the calves weight at six months of age ( $n = 1,117$ ) TET calves weighed 14.1 lb (6.4 kg) more than TUL at six months of age  $409.8 \pm 2.6$  lb and  $395.8 \pm 2.9$  lb ( $185.9 \pm 1.2$  kg and  $179.5 \pm 1.3$  kg), respectively;  $P < 0.0005$ ). Treatment did not affect mortality. During the first 60d post-enrollment, there were nine and eight deaths due to BRD in the TET and TUL groups, respectively. Calves treated for fever between birth and five weeks of age were 3.13 times more likely to die within 60 days post-enrollment.

## Significance

In this population of calves at risk of respiratory disease in the post-weaning period, treatment with TUL resulted in a lower incidence of BRD and increased weight gain than treatment with TET. The benefit of increased growth in the immediate post-weaning period is still evident at six months of age. TUL has a beneficial effect on weaned calf health and growth.