

**C-068****Performance and rumen papillae development of Friesian calves fed with pelleted starter or total mixed ration**

Riccardo Fortina<sup>1</sup>, Isabel Macchiorlatti Vignat<sup>3</sup>, Frine Eleonora Scaglione<sup>2</sup>, Paola Pregel<sup>2</sup>, Enrico Bollo<sup>2</sup>, Manuela Renna<sup>1</sup>

<sup>1</sup>Dipartimento di Scienze Agrarie, Forestali e Alimentari, Università degli Studi di Torino, Grugliasco (TO), Italy

<sup>2</sup>Dipartimento di Scienze Veterinarie, Università degli Studi di Torino, Grugliasco (TO), Italy

<sup>3</sup>Freelance professional, Cumiana (TO), Italy

Corresponding author: riccardo.fortina@unito.it

The growth of the rumen microflora, the production of volatile fatty acids and the development of rumen papillae greatly depend on the type and composition of solid ration administered to calves during weaning. Aim of this trial was to compare the effects of two solid feeds, a starter and a dry total mixed ration (TMR), on intake, growth characteristics of 24 Friesian weaning calves (20 females and 4 males) and rumen papillae development in males. Calves were divided into two homogeneous groups (10 females and 2 males) and fed milk replacer (from day 4 to day 40: 2×2 L/d; from day 41 to day 70: 1×3 L/d) and pelleted starter (group S) or TMR (group T). Solid feeds differed for

ingredients, nutrient composition and physical structure. The starter was higher in crude protein (CP: 21% *vs.* 14% dry matter) and lower in neutral detergent fiber (NDF: 30% *vs.* 46% dry matter) than TMR; non structural carbohydrates were similar in both solid feeds (NSC: about 30% dry matter). For each calf, solid feed intake was measured every 3 days from birth to 70 d of age, while body weight and height at withers were recorded at weekly intervals. The males were euthanized at 70 days of age and tissue from their rumen was sampled from 9 different districts, to measure papillae length. Total solid feed intake was subjected to an independent samples t test and a repeated measure ANOVA was used for the statistical evaluation of calves' growth characteristics; a non parametric Kruskal-Wallis test was used to analyze papillae length. Results showed that total solid feed intake was significantly higher in group S than group T (57.5 *vs.* 50.2 kg DM head<sup>-1</sup>; P<0.001), but no significant differences were observed in the final weight and height at withers of the calves. The length of the rumen papillae was variable; only in the caudoventral blind sac (district 9) of group T the papillae were significantly longer than in group S. This difference might be attributable to the different weight and specific gravity of feeds. Future programmed trials will verify whether these 20 females, now entering into production, will perform similarly or not, and if any difference in rumen functionality can be attributed to the feeding system adopted during weaning.