

The effect of different levels of feed intake on pancreatic growth and α -amylase concentration in beef cattle.

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The objective of this experiment was to determine the effect of different dry matter intake levels on pancreatic growth and α -amylase content in beef cattle. Twenty-four yearling Angus-cross steers (initial BW of 463.0 ± 24.2 kg) were fed individually using Calan gates a high-moisture corn-based finishing diet at one of four levels (1.25%, 1.50%, 1.75%, and 2.00% \times BW, DM basis) for an average of 45 days. After the feeding period, animals were slaughtered, the pancreas was removed and weighed, and a subsample collected for later analyses. Pancreatic weight (g) increased linearly ($P=0.01$) and pancreatic weight (% of BW) numerically increased ($P=0.19$) as intake increased. However, pancreatic DNA concentration (mg/g) decreased ($P=0.002$) as intake increased, while RNA and protein concentration (mg/g) did not differ. There was a quadratic effect ($P=0.03$) due to increased intake for pancreatic amylase concentration (U/g) with the highest concentration observed in the 1.50% group. Total pancreatic amylase content (KU) increased ($P=0.07$) as intake increased. These data indicate that increased intake induced an increase in pancreatic cell size and pancreatic α -amylase content. Increases in total pancreatic α -amylase content were partly due to differences in pancreatic weight, which were partially due to differences in BW.