

plot design with diet type as the whole plot and forage quality as subplot was administered in a 4-period (21 d) 4×4 Latin square using 8 Holstein heifers (321 ± 21 kg initial BW). Periods consisted of 17 d adaptation and 4 d total fecal and urine collection. Corn silage-based diets containing either 80 or 20% forage (DM basis) with 0, 20, 40 or 60% of forage provided by corn stover (CS; quality denominator) were evaluated. NH_3 concentration was determined using an infrared photoacoustic gas analyzer over a 24-h period and urine:feces as-collected from first 2 d of total collection. Odor was evaluated by a certified panel of human assessors utilizing a triangular forced-choice dynamic olfactometer (EN 13725: 2003). NH_3 emissions were different between HC and LC (6.98 vs. 10.57 ± 0.44 mgNH_3/g manure; $P < 0.01$), and decreasing quality of forage linearly increased NH_3 emission rate on HC diets ($P < 0.01$). Total daily NH_3 emissions were not different between quality or diet type. Feces:urine was lower for the HC diet (0.48 vs. 2.44 ± 0.44 ; $P < 0.01$). More feces relative to urine (g/g) was produced as quality of forage decreased ($P < 0.01$). Total manure (kg/d) was significantly higher as forage quality increased ($P < 0.01$), and decreased linearly with the addition of CS in the diets ($P < 0.01$). Results suggest that odor was less offensive as forage quality decreased. We conclude that NH_3 emissions were higher for the LC diets on a unit of manure basis, likely due to a shift in feces:urine. Lower quality forages increased these emissions linearly. Finally, forage quality seemed to have an effect on odor in this study.

Key Words: Ammonia Emissions, Odor, Forage Quality

TH256 Ammonia emissions and olfactometry analysis of limit fed high and low concentrate diets with different forage quality in dairy heifers. G. J. Lascano*, P. A. Topper, A. Adviento-Borbe, D. Topper, R. C. Brandt, E. F. Wheeler, and A. J. Heinrichs, *The Pennsylvania State University, University Park*.

Ammonia emissions and odor are being used to regulate animal production. The objectives of this study were to observe the effects of restricted feeding dairy heifers high concentrate (HC) and low concentrate (LC) diets with different forage quality on NH_3 emissions and odor. A split