30 min intervals. The effect of number of CIDRs (0, 1, 2) on CIDR-P, LH interpulse interval and the magnitude of the LH response to GnRH were determined by ANOVA. There was an effect of CIDR number on CIDR-P ($p < 0.0001$). There was no effect of CIDR number on the LH interpulse interval ($P = 0.4$). There was suppression in the amount of LH released in response to GnRH in the presence of 1 CIDR ($P < 0.01$). An additional CIDR had no further effect. These data suggest that 1) implanting 2 CIDRs leads to a significant increase in P compared to implanting a single CIDR, 2) increasing the concentration of P using two CIDRs failed to exert a negative feedback effect on pulsatile secretion of LH and 3) increasing the concentration of P with one CIDR exerted a significant suppression in the ability of GnRH to induce secretion of LH.
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Key Words: progesterone, dairy cow, LH

M130 Effects of increasing glycerin in the diet on ruminal fermentation during continuous culture.
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The objective of this experiment was to evaluate the impact of increasing levels of glycerin on ruminal fermentation during continuous culture. A 4 × 4 Latin square design was used to study four levels (0, 3, 5, and 8% of ration DM) of dry glycerin (min. 65% food grade glycerol) in the diet when replacing corn starch. The trial had 4 experimental periods of 9 d each, the first 6 d for adaptation and the last 3 d for sampling of effluent for DM content. Samples for VFA and ammonia were taken hourly for 5 h after feeding on day 9. Fermenters (1015 to 1040 ml in volume) were incubated with ruminal fluid (1 L) and ruminal digesta (25 g) from a cow receiving a diet with 16% CP, 32% NDF, and 25% starch. Fermenters were fed 25 g DM of the experimental diets three times per day and the solids retention time was set at 24 h. During the first 5 h after feeding, production of total VFA increased linearly ($P < 0.05$) (76, 81, 86 and 87 mmol/L) while ratio of acetate to propionate decreased linearly ($P < 0.01$) (2.7, 2.3, 1.8 and 1.5) by increasing level of glycerin in the diet. Ammonia concentrations (11.7 15.1, 12.8, and 14.3 mg/dl) increased linearly ($P < 0.05$) with increasing glycerin level during the first 5 h after feeding. Dry matter digestibility increased linearly ($P < 0.01$) with glycerin level and was 37, 38, 41, and 40% for 0, 3, 5, 8% glycerin treatments, respectively. Higher ammonia concentration may indicate lower efficiency of nitrogen utilization by the ruminal microorganisms. Under the present experimental conditions, replacement of starch with glycerin seemed to have positive effects, as shown by increased total VFA production, decreased acetate to propionate ratio, and higher DM digestibility.

Key Words: dry glycerin, ruminal fermentation, continuous culture

M131 Evaluation of the economic impact of Optigen® use in commercial dairy herd diets with varying feed and milk prices.
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The objective of this study was to evaluate the impact of Optigen® (blended, controlled-release urea) use in commercial dairy herd diets on feed cost and milk income minus feed cost. Results from a field trial with 16 Wisconsin herds randomly assigned to treatment sequences of either Optigen® (OPT; 114 g/cow/d replacing an equivalent amount of supplemental CP to provide iso-nitrogenous TMR; TMR formulation space created by the use of OPT was filled with either corn grain or corn silage DM) to control (CON) or CON to OPT in a cross-over design with two 30-d feeding periods, showed that milk yield was 0.5 kg/d/cow greater ($P < 0.01$) for OPT than for CON; data were analyzed using the mixed model procedure of SAS with period, sequence and treatment as fixed effects and herd as a random effect. An economic simulation analysis was performed using the OPT feeding rate and milk yield response from the field trial and monthly soybean meal-48 ($0.373±0.054/kg), dry corn ($0.188±0.020/kg), corn silage ($0.059±0.005/kg), and high-moisture corn ($0.149±0.016/kg) prices (as-fed basis) and milk prices ($0.38±0.03/kg) for January through December, 2008. The cost of OPT was set at $1.63/kg. A total of 32 combinations of varying feed and milk prices were simulated. Results are provided in Table 1. Under the conditions of the simulations performed in this study, OPT reduced feed cost only when corn silage was used to fill formulation space while milk income minus feed cost was increased by OPT for all scenarios. A decision tool spreadsheet was developed to allow for further economic simulation analyses with the ability to vary the milk yield response to OPT, the cost of OPT, and the CP and energy supplements evaluated.

Table 1. Economic impact of Optigen® use in dairy herd diets.

CP Supplement Replaced by OPT	Ingredient Used to Fill Formulation Space	Feed Cost OPT - CON ($/cow/day)	Milk Income OPT - CON ($/cow/day)	Milk Income - Feed Cost ($/cow/day)
SBM-48	Dry Corn	0.047 (± 0.027)	0.192 (± 0.016)	0.145 (± 0.039)
SBM-48	Corn Silage	-0.020 (± 0.039)	0.192 (± 0.016)	0.212 (± 0.051)
SBM-48	HM Corn	0.042 (± 0.028)	0.192 (± 0.016)	0.150 (± 0.040)

Key Words: controlled-release urea, feed cost, dairy cows

M132 Dry matter intake measurements in commercial tie-stall dairy herds.
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The objective of this study was to determine the relationships among fat corrected milk (FCM), measured dry matter intake (DMI), and DMI predicted from National Research Council equations (NDMI) in order to determine if DMI could be measured with sufficient accuracy in commercial tie-stall dairy herds to facilitate genetic research. There were 1091 intake measurements made for 543 cows from 11 herds in Central Pennsylvania. All herds participated in monthly Dairy Herd Improvement Association testing, and intakes were measured once monthly over a 24-hour period within 7 days of a test date. Herd managers were instructed to follow their normal feeding routine and to distribute feed evenly to all cows. Intakes were then calculated by recording the total feed distributed to a group of cows, adjusting for observed variation, recording the amount of feed that was moved to or from individual cows, and subtracting weights of individual refusals the following morning. Feed samples were collected on each visit and analyzed for dry matter percentage. Body weights were estimated from hearth girth measurements at four points during lactation. Least-squares-means (LSM) for FCM, DMI and BW were estimated for week of lactation 1 to 40 using a four-trait model in ASREML. Fixed effects included herd-test day, herd-lactation and week of lactation. Random effects were cow and error. Least squares-means for BW and FCM were used to derive weekly