183  Determining the prevalence of failure of passive transfer in heifer and bull calves on Michigan dairy farms. F. Cullens* and M. Weber Nielsen, Michigan State University, East Lansing, MI.

The overall aims of this extension research are to determine the prevalence of failure of passive transfer (FPT) in heifer and bull calves, identify the best management practices that result in a reduced FPT in dairy calves on Michigan farms, and determine if a hand-held refractometer is a reliable measure of FPT in healthy calves. Fifty dairy farms in Michigan were included in the study. A blood sample was collected from 12 heifers and 12 bulls between 2 to 7 d of age on larger farms (over 250 milking cows, n = 38) and 6 heifers and 6 bulls on smaller farms (n = 12). Dehydration of calves was scored visually, and selected management practices for the farm were recorded following interview with the calf manager. Serum Total Protein (STP) was determined using a Misco handheld refractometer with STP < 5.2 considered to be FPT. Immunoglobulin G (IGG) concentrations were determined on a subset of 343 serum samples by Saskatoon Colostrum Company, with IGG < 10.0 recorded as FPT. Only 2 samples failed according to STP but passed IGG, while 13 samples passed STP and failed IGG. All 15 calves with discrepancies showed signs of dehydration, indicating that in healthy calves a refractometer can be a reliable measure of STP. When fit to the block design model, sex was not significant although numerically bulls had higher prevalence of FPT (26%) than heifers (18.5%). There was an interaction of sex and farm size; heifers showed FPT more frequently on small farms than on large farms (P = 0.0001). Five farms had zero cases of FPT, while 6 farms had 50% or greater FPT. Overall 18/50 of study farms met the industry goal of less than 10% FPT. Farms with high priority on colostrum feeding had lower FPT. Farms that had best management practices resulting in lower FPT had a goal of feeding 3 to 4 quarts of colostrum within 1 to 3 h of birth, followed by a second feeding, had colostrum in storage or colostrum replacer on hand, did not allow nursing of the cow, and used a Brix refractometer to test colostrum quality. A benchmarking report was shared with all 50 farms and included customized guidelines for improving management practices. Results were widely shared at extension programming.

Key Words: calves, passive transfer

184  Using whole-farm analysis based on Holos to reduce net greenhouse gas emissions: Examples from dairy systems. S. M. Little*, 1C. Benchaar2, H. H. Janzen1, R. Kröbel1, E. J. McGeough3, A. McPherson1, and K. A. Beauchemin1, 1Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, Lethbridge Research and Development Centre, Lethbridge, AB, Canada, 2Department of Animal Science, University of Minnesota, St. Paul, MN.

Before recommending a feeding or management strategy for greenhouse gas (GHG) mitigation, it is important to conduct a holistic assessment of all related emissions, including those arising from feed production, digestion of these feeds, managing manure, and other on-farm production processes and inputs. The cumulating and cascading effects of management practices on emissions from agricultural systems can rarely be measured directly, so whole-farm emissions are normally estimated using mathematical models. An example of such a model is Holos, a whole-farm model and software tool developed by Agriculture and Agri-Food Canada to estimate GHG emissions from Canadian farm systems (www.agr.gc.ca/holos-ghg). Using a whole-systems approach, the Holos model, and experimentally measured data, we compared the effects of alfalfa silage-, barley silage-, and corn silage-based diets on GHG estimates in simulated Canadian dairy production systems. Previous studies showed the impact of silage choice on enteric methane production but the impact of diet choice on GHG emissions from the complete farm system had not been explored. Utilizing the functional units of milk, meat, and total energy in food products generated by the system, the comparison demonstrated very little difference between alfalfa and corn silage production systems in terms of GHGs. In general, GHG emissions associated with barley silage-based diets were higher than those for corn silage-based diets. This demonstrates that reported GHG reduction factors cannot be simply combined additively because the interwoven effects of management choices cascade through the entire farm system, sometimes with counter-intuitive outcomes. Whole-farm analysis of GHG emissions from dairy production and exploration of mitigation strategies is facilitated by the Holos software tool.

Key Words: carbon footprint, greenhouse gas emissions, computer software

185  Producer perceptions of the National Dairy Farmers Assuring Responsible Management (FARM) Animal Care Program. K. A. Rink*, 1P. J. Turk2, S. L. Archibeque-Engle3, J. K. Ahola1, J. C. Hadrich4, and I. N. Román-Muñiz1, 1Department of Animal Sciences, Colorado State University, Fort Collins, CO, 2Department of Statistics, Colorado State University, Fort Collins, CO, 3Colorado State University, Fort Collins, CO, 4Department of Applied Economics, University of Minnesota, St. Paul, MN.

The National Dairy Farmers Assuring Responsible Management (FARM) Animal Care Program provides guidelines for farms producing 98% of the US milk supply. Producers who sell milk to co-ops or processors participating in FARM must follow animal care standards defined by the program’s technical writing group. Objectives of this study were to assess producers’ perceptions about knowledge, experience, value, and reasons for considering FARM important, and to determine if perceptions differ based on producer demographics. Producers from collaborating dairy co-ops and processors were recruited via electronic and postal mail. A total of 487 respondents from 40 states completed the survey. Of respondents, 50.0% identified dairy co-ops or processors as the main source of information about FARM, and 73.6% reported being knowledgeable about FARM. More formal education and larger herd size were correlated with greater producer knowledge (P < 0.01 and P = 0.04, respectively). Producer input in the revisions of FARM was identified as a need by 83.3% of respondents. While 89.3% of respondents reported positive experiences with evaluations and relationships with evaluators, 45.6% did not think that FARM has value overall. By 83.3% of respondents described FARM as important because it improved animal health and wellbeing over describing FARM as not
important increased 7.2% (OR = 1.072; 95% OR CI: 1.024, 1.122) with each year of age. As age increased, respondents were more likely to describe FARM as important because it unified the dairy industry on animal welfare over describing FARM as not important (OR = 1.095; 95% OR CI: 1.029, 1.164). These results indicate that to increase buy-in and positive perceptions of producers, future versions of FARM should solicit producer input and target specific producer demographics for training and program promotion.

**Key Words:** animal care, dairy producer, FARM