TH192 Constraints for nutritional grouping in Wisconsin dairy farms. F. E. Contreras-Govea*, V. E. Cabrera, L. E. Armentano, R. D. Shaver, and P. M. Crump, *University of Wisconsin-Madison, Department of Dairy Science, Madison.*

The objective of this survey was to quantify the percentage of dairy farmers that feed a single ration and identify existing constraints to grouping and precision feeding of lactating cow groups. A 2-page questionnaire was mailed to all Wisconsin dairy farms with 200 or more lactating milking cows (n = 800). After one reminder, the response rate was 25% (196). The survey consisted of 12 questions that covered general description of the farm and specific about grouping and feeding. Average lactating dairy cows per herd was 604 (range 200 to 3,200) and rolling herd average was 11,657 kg milk/cow per yr (range 7,031 to 14,968). Data were analyzed using the non-parametric Wilcoxon-Rank scores, which compared the responses among 5 herd size categories: 200–250, 251–380, 381–525, 526–802, and > 802 lactating cows. Questions were asked about what farmers are currently doing regarding to grouping, how they perceive grouping and feeding groups, and constraints to feeding more than one ration to lactating cows. Responses ranked from 1, strongly disagree, to 5, strongly agree. A difference among herd size was found for criteria for grouping lactating cows. Herds with more than 250 cows gave more importance to the need for keeping pens full (3.65) ($P < 0.025$) and having a fresh cow group ($P < 0.001$), with the latter as the most important (4.62) for all farm sizes. Criteria for feeding more than one ration were not different among herd size categories. Higher ranking were given to fresh vs. all other cows (3.77) and stage of lactation for non-fresh cows (2.96). A quarter of respondents (25%) reported feeding the same ration to all lactating herd. Within this 25%, 63% (31 farms) were in the range of 200 to 380 lactating cows. The main constraints for feeding more than one ration were given to keep it simple (48%) and the perception that milk drops when cows are moved to a different group (52%). We concluded that 75% of dairy farms in Wisconsin feed more than one ration and 91% perform some grouping in lactating cows, but there are farms with herd size between 200 and 802 (81%) that could increase feed efficiency by enhancing some management tools of grouping and nutritional feeding.

Key Words: grouping, nutritional feeding

TH193 A survey of starch digestibility on Wisconsin dairy farms. A. Huibregtse[1], C. Heuer[2,3], R. Shaver*[2], and P. Hoffman[2], *[1]Oconto County Extension, Oconto, WI, [2]Dairy Science Department, University of Wisconsin, Madison, [3]Rock River Laboratory, Watertown, WI.*

University of Wisconsin-Extension county-based agricultural agents conducted a field study to evaluate changes in starch digestibility over the winter months on 30 commercial Wisconsin dairy farms. Study farms milked 223 ± 206 cows with bulk tank milk yields of 32.7 ± 5.5 kg/d per cow. Corn silage (WPCS), high moisture corn (HMC), and dry corn samples were collected from each farm, and analyzed for DM and starch contents, particle size, and 7-h ruminal in vitro starch digestibility (IVSD; % of starch). Composite manure samples, collected from each farm by combining rectal grab fecal samples from 10 cows within the herd between 45 and 120 DIM, were analyzed for starch content to estimate total-tract dietary starch digestibility (TTSD). Feed and manure samples were collected from each of the study farms during November 2011 and then again during April 2012. The WPCS DM (35.0% ± 4.5 vs. 36.2% ± 5.1) and starch (34.7% ± 5.4 vs. 34.1% ± 4.8; DM basis) concentrations and kernel processing score (KPS; % starch passing 4.75 mm sieve; 37.0% ± 11.1 vs. 61.1% ± 12.4) were similar for fall and spring sampling periods, respectively. The IVSD for WPCS was 6.6%-units greater in spring than fall (90.3% ± 3.7 vs. 83.7% ± 7.5). The range for IVSD of WPCS samples was 35.8%-units in fall compared with 13.7%-units in spring. Across all farms and both sampling periods for WPCS samples, > 20% contained ≥ 40% DM and > 25% were under-processed (KPS <50%). The HMC DM content (72.0% ± 7.2 vs. 74.8% ± 5.9), mean particle size (MPS; 1725 μ ± 562 vs. 1548 μ ± 626), and IVSD concentrations (75.7% ± 8.2 vs. 74.5% ± 7.2) were similar for fall and spring sampling periods, respectively. Across all farms and both sampling periods for HMC samples, 44% contained > 75% DM and 32% were under-processed (MPS >2000 μ). Fecal starch content (3.3% ± 3.0 vs. 4.1% ± 4.0) and estimated TTSD (95.9% ± 3.7 vs. 94.9% ± 5.0) were similar for fall and spring sampling periods, respectively. Fecal starch content was <5% of DM for 75% of samples. Results indicate that improved control of WPCS and HMC harvest and processing practices and longer WPCS ensiling times would enhance starch digestibility for some dairy farms.

Key Words: corn silage, starch, digestibility

TH194 Determining forage dry matter by microwave, Koster Moisture Tester, and Q-Dry methods. F. H. Pino* and A. J. Heinrichs, *The Pennsylvania State University, University Park.*

This study examined dry matter (DM) determination of feeds by 4 different methods to evaluate the relationship between each one and traditional forced air oven (FAO). Samples (n = 60; 35 corn silage, 15 grass silage, and 10 TMR) were analyzed by microwave (MW), Koster Moisture Tester (KMT), Q-Dry, and FAO. According to manufacturer specifications 50, 50, 40, and 200 g of sample were used for MW, KMT, Q-Dry, and FAO, respectively. Using MW, DM was determined by heating the sample sequentially for 1.5 min, 45 s, 30 s, and 20 s repeatedly until sample weight did not change. For KMT, DM was measured by initially heating for 30 min, recording sample weight, then heating each sample repeatedly for 10 min until the weight did not change. For Q-Dry samples were deposited on a plate and DM was determined automatically. Determination of DM in FAO was calculated by weighing samples before and after placing in the oven at 65°C for 48 h. Data were analyzed by simple linear regression (Minitab, Inc.) utilizing FAO as control. Results are shown as slope of the equation (b) and coefficient of determination (R^2). A linear relationship ($P < 0.001$) was observed for corn silage between FAO and MW (b = 0.942, $R^2 = 0.971$), KMT (b = 0.719, $R^2 = 0.813$), and Q-Dry (b = 0.869, $R^2 = 0.941$). In addition, grass silage showed a linear relationship ($P < 0.001$) between FAO and MW (b = 0.967, $R^2 = 0.98$), KMT (b = 0.944, $R^2 = 0.968$), and Q-Dry (b = 0.97, $R^2 = 0.951$). For TMR samples a linear relationship ($P < 0.001$) also was observed between FAO and MW (b = 0.923, $R^2 = 0.963$), KMT (b = 0.674, $R^2 = 0.939$), and Q-Dry (b = 0.0.978, $R^2 = 0.975$). All the samples together gave corresponding high correlations: MW, KMT, Q-Dry vs. FAO, b = 0.931 $R^2 = 0.978$; b = 0.721, $R^2 = 0.875$ and b = 0.920, $R^2 = 0.965$ respectively ($P < 0.001$). All methods resulted in similar DM determination, exhibiting a strong, linear relationship with FAO; however, MW showed the best fit followed by Q-Dry, and then KMT. Based on these data we suggest MW or Q-Dry the best alternative to traditional oven-drying on farms.

Key Words: dry matter, corn silage, grass silage

TH195 Proposal for a universally applicable method of evaluating feed cost and shadow pricing for dairy cattle based on locally available feeds. D. Barber[1] and R. A. Patton*[2], *[1]Agri-Science Queensland, Department of Agriculture, Fisheries and Forestry, Lawes, QLD, Australia, [2]Nittany Dairy Nutrition Inc., Mifflinburg, PA.*

A challenge of dairy nutrition extension is teaching a method of feed pricing that is fair and easily grasped by farmers and nutritionists. Traditional methods have involved apportioning monetary values to crude protein and energy using corn grain and soybean meal as references. Drawbacks are that local products may vary nutritionally from those found in US derived databases, in many local markets corn and soybean meal are not available, quoted prices of these 2 ingredients do not reflect local market conditions, and use of corn-soy indexes often lead to an over valuation of protein, which in pasture situations may not be a limiting nutrient. The method involves the computation of the values of protein and energy using tTDN as described in NRC 2001. The nutrient value of feeds is apportioned to protein and energy by subtracting tCP from tTDN. The % of CP and % of energy are multiplied by the market price to arrive at a cost for CP and energy. Break-even cost can be computed by selecting the feed with the lowest CP cost and the feed with the lowest energy cost available in the market to be the reference feeds. The CP and energy content of other feeds available are then multiplied by the reference values to obtain the break-even price. The CP content of the feed selected as the protein reference must have over 30% CP with an NDF content greater than 10%, and the feed selected as the energy reference feed must have a starch content over 40%. Advantages of this system are (1) stakeholders can quickly understand the system; (2) the system is relevant to stakeholder understanding of the market; (3) tTDN values are generally available in popular ration balancing programs; and (4) the system can be easily adapted to spreadsheet applications. The disadvantage is that the values necessary for accurate calculation of tTDN are not always available. Work with Queensland dairy producers suggests a high understanding and acceptance of this method. We conclude that this method can reduce feed costs and encourage dairymen to be more nutritionally aware.

Key Words: CP cost, energy cost, break-even price

TH196 Variation in alfalfa silage, corn silage and high-moisture dry matter content within and among silo bags. L. F. Ferraretto* and R. D. Shaver, *University of Wisconsin-Madison, Madison.*

The objectives of the study was to determine the variation in DM content within and among silo bags of alfalfa silage (AS), corn silage (CS) and high moisture corn (HMC). A data set comprised of 57 AS, 42 CS and 11 HMC silo bags, fed between 2003 and 2010, was obtained from the University of Wisconsin Emmons Blaine Dairy Research Center. Dry matter content was measured weekly or biweekly either in a forced-air oven at 60°C for 48 h or via portable near infrared spectroscopy (Dinamica Generale, Mantova, Italy). Average and standard deviation (SD) were measured for individual bags. Descriptive statistics of average of individual bags were used as an indicator of variation among bags. Descriptive statistics of SD of individual bags were used as an indicator of variation within bags, with values multiplied by 2 to demonstrate difference between minimum to maximum DM values within bags. The DM content of AS ranged from 31.6 to 50.4% among the 57 bags with an average of 40.8%. Furthermore, the variation within AS bags ranged from 1.8 to 28.4%-units of DM, with an average of 9.0%-units of difference. Likewise, CS presented high variation among bags, with a range of 31.1 to 54.7% DM and average of 37.9%. Variation within bags followed the same pattern with a range of difference of 1.2 to 8.8%-units of DM (average of 4.2%-units). Although the variation among bags observed for HMC was lower than AS and CS (averaged 72.1% DM, with a range of 69.9 to 73.9%), variation within bags was relatively high (ranged 2.6 to 8.0%-units with an average of 4.6%-units difference). These data suggest that variation within bags is as high as among bags and thus, frequent sampling within bags for as fed to DM corrections is an important feed management practice to maintain uniform TMR in dairy farms.

Key Words: silo bag, dry matter content, silage

TH197 Evaluation of on-farm feed nutrient composition determined by near infrared spectroscopy. M. S. Akins*[1], L. F. Ferraretto[2], C. Weigel[1], J. Dewell[1], M. Dobberstein[3], and R. D. Shaver[2], *[1]University of Wisconsin-Platteville, Platteville, [2]University of Wisconsin-Madison, Madison, [3]Dinamica Generale US Inc., DeKalb, IL.*

This study's objective was to evaluate the use of near infrared spectroscopy (NIRS; Dinamica Generale, Mantova, Italy) for on-farm feed DM, CP, NDF, ADF, starch, fat, and ash content. To calibrate the NIRS to feeds at the University of Wisconsin-Madison and University of Wisconsin-Platteville, 5 samples of corn silage(CS), alfalfa silage(AS), and high-moisture corn(HMC) from each location were analyzed using NIRS to obtain a spectral analysis, then sent to Dairyland Laboratories, Inc.(Arcadia, WI) for analysis. Spectral and analysis data were used to update calibration equations. Samples of CS (n = 88), AS (n = 39), and HMC (n = 47) were obtained approximately twice weekly for 12 wk from both locations and stored at −20°C until analyzed by NIRS on the same day. Undried, unground samples were used for on-farm NIRS analysis. The sample scanned by on-farm NIRS was sent to Dairyland Laboratories, Inc. for analysis. Samples were microwave dried to 92–96% DM, ground to pass a 1 mm screen (Udy cyclone mill; Fort Collins, CO), and analyzed using a Foss 5000 NIRS (Hillrød, Denmard). Bias was calculated as the difference between lab and portable NIRS analysis. On-farm NIRS was comparable to lab NIRS for DM, CP, ADF, and NDF content in CS. Starch content for CS varied (bias of 2.6 ± 6.3% units) between on-farm and lab NIRS. For AS and HMC, on-farm measurement of DM was similar to lab NIRS with variability between on-farm and lab NIRS for other nutrients. Overall, on-farm NIRS had lower ranges of nutrient values compared with lab NIRS and a more diverse sample set is likely needed to predict nutrient composition of feeds from different lots and locations.

Table 1. Nutrient analysis (DM basis, ±SD) from a commercial lab and on-farm NIRS

	Corn silage		Alfalfa silage		High-moisture corn	
Item	Lab	On-farm	Lab	On-farm	Lab	On-farm
DM	34.6±3.5	33.7±2.6	47.3±6.2	49.9±7.0	73.9±1.6	72.1±1.7
CP	7.9±0.5	8.2±0.4	20.8±0.9	20.4±1.0	9.0±0.7	9.6±0.2
Starch	29.2±10.6	26.6±4.9	—	—	69.0±1.5	68.2±0.9
ADF	23.6±4.0	24.4±2.4	31.2±1.6	29.5±1.4	1.8±0.5	2.2±0.4
NDF	39.5±5.5	40.6±3.7	38.1±2.3	37.1±2.4	5.2±0.9	6.8±0.7
Fat	2.8±0.4	3.2±0.2	2.9±0.2	3.0±0.1	2.9±0.3	3.0±0.1
Ash	3.9±1.0	4.7±0.5	12.1±1.3	12.2±0.4	1.4±0.1	1.5±0.1

Key Words: feed nutrient analysis, NIRS

TH198 An update on the Repro Money Program: A farmer-directed team-based extension program to improve reproductive

performance in Wisconsin dairy herds. M. C. Cordoba*, P. M. Fricke, P. L. Ruegg, R. D. Shaver, K. A. Weigel, and V. E. Cabrera, *University of Wisconsin-Madison, Madison.*

Repro Money is an extension program offered to Wisconsin dairy farmers who want to improve reproductive performance of their dairy herd. This farmer-directed team-based approach consists of 4 meetings during a 6- to 8-mo period. The goal is to help dairy farmers best utilize their personnel and advisers in a coordinated way to improve reproductive performance and profitability. Data from all farms that enrolled and completed the program (n = 13) between fall 2010 and summer 2012 were included in this analysis. These farms averaged 385 cows (range = 67 to 850) with a rolling herd average of 12,524 kg/cow per year (range = 21,350 to 32,000 kg). Financial and management data were obtained with the aid of a guided situation assessment, action plan, and goal setting tool. Data were analyzed before and after participating in the program to evaluate the program's effect on enhancing reproductive performance and herd profitability. After finishing the program, number of days in milk decreased 6 d (0 to 43), insemination risk increased 3% (53 to 56%), conception risk increased 3% (38 to 41%), and the 21-day pregnancy rate increased 3% (19 to 22%) among these herds. These improvements were estimated to yield an average economic gain of $55/cow per year with a total economic gain of $177,185/yr for the participating farms. This amount is expected to increase due to future additional improvements and management changes to be implemented using the program principles because 70% of participating farms decided to continue with regular meetings after finishing the program. All 13 farms that finished the program were highly satisfied with the outcomes with 85% of farms achieving the goals set, which included increasing the 21 d pregnancy rate, increase conception risk, and decreasing days to first AI. The 3 most important management changes that resulted from participating in the Repro Money Program were to perform better recordkeeping, focus on transition cow management, and improve synchronized breeding protocols. Supported by AFRI Competitive Grant no. 2010-85122-20612.

Key Words: reproduction, management, team-based

TH199 Changes in lying behavior and milk yield associated with changing freestall dimensions and bases. B. A. Wadsworth*, A. E. Sterrett, J. D. Clark, D. L. Ray, and J. M. Bewley, *University of Kentucky, Lexington.*

Two freestall barns at the University of Kentucky Coldstream Dairy were renovated in November 2011. The objective of the study was to characterize changes in lying time (LT) and milk yield (MY) associated with changing freestall dimensions and bases. The brisket locator was transitioned from a wooden board to a 7.6 cm schedule 40 PVC pipe. The length of the stall, from brisket locator to curb side of the alley was increased from 1.7 m to 1.8 m. The neck rail height was increased from 1.0 m to 1.2 m (top of stall base to bottom of rail). Mean stall width was 1.2 m. Dual Chamber Cow Waterbeds (Advanced Comfort Technology, Reedsburg, WI) (DCCW) replaced old rubber-filled mattresses in 50 stalls in barn A. New rubber-filled mattresses (MAT) replaced old rubber-filled mattresses in 50 stalls in barn B. IceRobotics (Edinburgh, UK) IceQube sensors recorded LT. Milkline milking systems (Italy) recorded MY. All variables were classified for Holsteins (n = 34), relative to renovation time (RENTIME) with pre-renovation (40 d) data collected from September 28 to November 6, 2011, and post renovation (40 d) data collected from December 18, 2011, to January 29, 2012. The GLM procedure of SAS (Cary, NC) was used to test for the fixed effects of barn, parity, RENTIME, and milk yield and all 2-way interactions on LT and the fixed effects of barn, parity, DIM and RENTIME, and all 2-way interactions on MY. All main effects were kept in each model regardless of significance level. Stepwise backward elimination was used to remove non-significant interactions ($P \geq 0.05$). Daily LT was not significantly ($P = 0.59$) different before and after renovations. Daily LT was also not significantly ($P = 0.56$) different between DCCW and MAT. Milk yield was a significant ($P < 0.01$) predictor of LT. As MY increased, LT decreased. Daily MY was not significantly ($P = 0.06$) different before and after renovations. Daily MY was also not significantly ($P = 0.12$) different between DCCW and MAT.

Key Words: lying time, freestall, waterbed

TH200 A decision support tool for compost bedded pack barn bedding cost analysis. E. Eckelkamp*, J. Taraba, and J. Bewley, *University of Kentucky, Lexington.*

The objective of this project was to create a user-friendly dashboard decision support tool for compost bedded pack barn bedding cost analysis. User inputs included: month, barn orientation, distance to closest building, fan presence and speed, milk yield, herd size, total barn area (square meters), target pack moisture, alternative bedding costs, wood source, bedding load volume (cubic meters), and bedding moisture percentage (MC). Drying rates were calculated using 30-year Kentucky historical weather data. Mean temperature, wind speed, fan speed, and the drying driving force determined drying rate and days between bedding addition. Kiln dried and green bedding were evaluated separately along with 3 bedding mixtures: coarse shavings, coarse shavings and fine dust mixture, and fine dust. Analysis outputs included daily bedding cost (CD), number of yearly bedding loads (LY), bedding costs per year (CY), days between bedding addition (TD), and least expensive bedding option. To compare alternative beddings in Scenario 1 and 2 with all model assumptions held equal except bedding MC, kiln-dried bedding (KD) was set at 6.00% and green bedding (GR) at 35.00%. In Scenario 1, the following inputs were used: May, no fans, orientation parallel with an open ridge, 46 m between buildings, coarse shavings and fine dust mixture, $780 per bedding load, and bedding volume of 198 m^3. The CD, LY, CY, and TD for GR and KD were $70.91, 33, $25,881.82, and 11 and $41.05, 19, $14,984.21, and 19 respectively. The best option for Scenario 1 was KD mixture. In Scenario 2, natural ventilation was changed to fans on high speed (9.7 km/h). The CD, LY, CY, and TD for GR and KD were $27.86, 28, $10,167.86, and 13 and $16.60, 8, $6,057.45, and 47 respectively. In Scenario 3, costs were changed to $780.00 for KD and $400.00 for GR using fans on high speed. The best option for Scenario 2 was also KD mixture. The CD, LY, CY, and TD were $14.29, 28, $5,214.29, and 13 and $16.60, 8, $6,057.45, and 47 for GR and KD, respectively. The best option for Scenario 3 was GR mixture.

Key Words: economic dashboard, compost bedded pack barn

TH201 Tools for teams: Improving the success of dairy farm teams. L. Holden*[1], R. White[1], V. Ishler[1], R. Goodling[1], K. Baase[2], and T. Kitsos[3], *[1]The Pennsylvania State University, University Park, [2]Cornell Cooperative Extension, Morrisville, NY, [3]University of Vermont, St. Albans.*

Use of dairy advisory teams has become a common management practice for dairy farm businesses. While the use of teams has been shown to create some improvements at the farm level, many teams struggle to have lasting positive impact. The program objective was to develop an extension education program – "Tools for Teams" – to allow team members to learn about what tools were available, use those tools with

their own teams, and participate in follow up sessions to refine the tool use and improve the overall success of the teams. In phase 1 of the program, workshops were conducted with follow-up webinars to allow program participants to actively learn how to use the tools and to help with implementation of use, rather than simply providing a one-way flow of information. Participants were introduced to the tools in an interactive workshop format using a case study to demonstrate a variety of web-based tools useful for teams. Several of the tools demonstrated included: PA Dairy Tool, Monthly Monitor, and Dairy Analysis Tools as well as general team tools with formats for setting agendas, developing action plans and gaining feedback in member evaluations. Following the workshops, participants were encouraged to use the tools with their teams and provide feedback to instructors through a series of specially designed webinars. Each webinar focused on the use of one tool and instructors answered questions, received feedback and provided follow up for more effective use. Initial evaluations showed positive impact with increases in both knowledge gained - from non-existent or minimal before the program to moderate or considerable knowledge with all tools after the workshops. Participants indicated that level of use of these tools was likely to be increased as a result of attending this program. In phase 2 of the project, long-term effect at the farm level will be evaluated. This 2-phase format for extension education was useful for demonstrating complex team tools and allowed for more experiential learning and better implementation of tools with dairy advisory teams.

Key Words: dairy advisory team, management tool

TH202 Look who's talking when setting goals and protocols for calf care. W. M. Sischo[1], D. A. Moore*[1], M. Davis[1], K. Heaton[1], D. Kinder[1], S. Kurtz[1], J. Siler[2], R. Pereira[2], and L. Warnick[2], *[1]Washington State University, Pullman, [2]Cornell University, Ithaca, NY.*

As the structure of the dairy industry changes so does management. Owner-operator farms are giving way to farms with specialized personnel for management and tasks. As consequences, management structures are more complex, more critical decisions are made by middle management and workers, and communication between owners and workers is complex and indirect. The study objectives were to assess current communication practices on US dairies and describe the actual and perceived communication between management and workers regarding goal setting and daily task for calf feeding and health. Semi-structured Qualitative Research Interviews of at least 4 people on each farm; owner, calf manager, calf care personnel, and herd veterinarian were conducted in Spanish or English using organizational communication flowcharts and a survey of attitudes and practices. Fifty-three farms from 5 states were enrolled. Interviews were conducted with owners (55), veterinarians (51), feeders (37), calf managers (30), herd managers (18), herdsmen (10), treaters (17), and others (7). Lines of communication were perceived differently depending on job titles. From owners' perspectives, when establishing feeding goals, s/he talked to the veterinarian on 67% of farms, calf manager (50%), and feeder (17%). In contrast, from the veterinarian's perspective, on 79% of farms they communicated with owners when setting feeding goals, herd managers on 41% and calf managers on 35% of farms. Calf managers communicated with herd managers on 75% and owners on 50% of farms. Feeders were rarely noted by others to be involved in setting goals, except from their perspective where 71% reported talking to calf managers while only a third of calf managers reported them involved. When setting calf health goals, most owners and veterinarians saw communication occurring between them (72–85%). That communication was not perceived by calf managers or treaters. More than half of treaters reported communication between them and the calf manager when setting health goals. This study shows the complexity of communication on dairies with layers of employees and that different perspectives on who's talking exist.

Key Words: communication, organization, education

TH203 Educational farm tours improve public understanding, impressions, and trust in modern dairy production systems. T. A. Ferris*[1], N. D. Thelen[2], and M. A. Dunckel[3], *[1]Department of Animal Science, Michigan State University, East Lansing, [2]Michigan State University Extension, Ann Arbor, [3]Michigan State University Extension, Alpena.*

Breakfast on the Farm (BOTF) events in Michigan involve public farm tours with educational stations providing consumers a first-hand look at modern food production. Ten of 12 tours in 2010 and 2011 coordinated by Michigan State University Extension involved dairy operations with 16,270 participants. Exit surveys from 1,567 of these participants indicated that 44% had not visited a dairy farm in the past 20 years (first-time visitors) and 21% had made only 1 or 2 prior dairy farm visits. On a 5-point scale from Strongly Disagree to Strongly Agree, 79% of first-time visitors Strongly Agree and 94% either Agree or Strongly Agree to the statement "I have a better understanding of modern dairy production." Of those with 1 or 2 prior visits, 70% Strongly Agree and 96% either Agree or Strongly Agree to this statement. Results are similar for level of agreement with the statement "My general impression about modern dairy farming has improved as a result of my visit today." Respondents rated their "General Impression" about 4 topics "Before" and "After" their BOTF visit: "How farmers care for the environment," "How farmers treat food-producing animals," "Steps taken to safe guard milk," and "Housing provided for dairy animals." For "Housing provided for dairy animals" the percentage with Very Positive impressions "Before" and "After" shifted from 26 to 76%, respectively, for first-time visitors, and from 27 to 71%, respectively, for those with 1 or 2 prior visits. Those with Very Negative (n = 32) or Negative impressions (n = 87), dropped to 2 and 8 people, respectively. Similar results occurred for the 3 other topics. Two questions attempted to gauge the increase in trust: "As a result of today's tour, my trust in milk as a safe food has increased" and "As a result of today's tour, my trust in dairy farmers as a source of information about food production has increased." On the 5-point scale, 68% of those making their first visit to a modern dairy farm Strongly Agree and 86% either Agree or Strongly Agree to the first statement and 73% Strongly Agree and 91% either Agree or Strongly Agree to the second statement.

Key Words: educational farm tour, modern dairy production, consumer trust

TH204 Developing a regional extension dairy programs through the use of DHI production data in Northern New York. K. M. Morrill*[1], S. Morrison[2], H. M. Dann[2], and H. M. Gauthier[2], *[1]Cornell Cooperative Extension, Canton, NY, [2]William H. Miner Agricultural Research Institute, Chazy, NY.*

The objective of this retrospective study was to evaluate 2012 milk quality and production on Northern New York (NNY) dairy farms and identify opportunities to develop extension programs. Data were provided by DRMS (Raleigh, NC) for NY state dairy herds (n = 1620 herds, 295,786 cows) on DHI test. Data were analyzed on a state and regional (n = 252 herds) basis to determine overall means and influence of herdsize (<100 cows, 100 to 499 or >499 cows), breed (Holstein, Jersey, other), and management scheme (organic or conventional) on production parameters. Overall means were similar on a statewide and

regional basis. Average daily milk production/lactating cow ranged from 10.7 to 47.5 kg/day, with a mean of 28.9 kg/day (SD = 5.7). Percent fat in NNY ranged from 3.0 to 5.0%, the overall mean was 3.8% (SD = 0.3). Percent protein in NNY ranged from 2.8 to 3.8%, the overall mean was 3.1% (SD = 0.2). The percentage of cows/herd that had a SCC score <4 ranged from 27 to 92% with a mean of 69.5% (SD = 10.9). The percentage of cows/herd that had a SCC score of 4 ranged from 4 to 27% with a mean of 12.5% (SD = 4.2%). The percentage of cows/herd with a SCC score of 5 ranged from 2 to 24% with a mean of 8.0% (SD = 3.3). The percentage of cows/herd with an SCC score of 6 ranged from 1 to 17% with a mean of 5.0% (SD = 2.4). The percentage of cows/herd with an SCC score >6 ranged from 1 to 19% with a mean of 5.2% (SD = 2.8). Management scheme did not influence any production parameters; however there was a breed effect ($P < 0.05$) on %fat, %protein and milk/cow (Holstein = 32.5, Jersey = 23.8, other = 28.1 kg/day, respectively). There was a herdsize effect ($P < 0.05$) on all SCC scores, with herds >500 cows have a greater ($P < 0.05$) percentage of cows with a SCC score ≤5 as compared with farms with <500 cows. There was also a herdsize effect on average daily milk/cow (small = 24.0, medium = 27.1 and large = 33.1 kg/cow/day, respectively). This data suggests that NNY extension dairy programs should be developed to improve milk quality on dairies with <500 lactating cows.

Key Words: quality milk, DHI, extension

TH205 Advising and technical support for dairy goat farmers: An Antonio Narro University service and extension experience in northern Mexico. P. A. Robles-Trillo*[1], F. G. Veliz[1], R. Rodriguez-Martinez[1], M. A. De Santiago-Miramontes[1], G. Arellano-Rodriguez[1], C. A. Meza-Herrera[2], and E. Martínez-Aranda[1], *[1]Universidad Autonoma Agraria Antonio Narro, Torreon, Coah. Mexico, [2]Unidad Regional Universitaria de Zonas Aridas, Universidad Autonoma de Chapingo, Bermejillo, Durango, Mexico.*

The Lagunera region, located in northern Mexico, at 25°N, 103°W, 1243 m asl, and annual averages of 24°C temperature and 270 mL rainfall, has almost 500,000 dairy goat heads producing more than 78,829,000 L per year, mainly raised under extensive and marginal conditions. This complex production system requires technical support. Therefore, our University carries-out a service project to achieve a link with the goat productive sector. The aim of this extension project is to provide advice and technical support for dairy goat producers, involving in such technical support and technical training to students which participate as practitioners and extension agents. Technical support and training involves visits to local farmers to perform different activities such as a) formulation and evaluation of rations, b) evaluation of the reproductive and productive state of livestock, c) determination of milk chemical composition, d) management and care of young, juvenile and adult goats, e) routine hygienic milking, f) recording of different management practices as well as g) monitoring of the herd health conditions. The project covers approximately 12,000 animals producing a peak production close to 18,000 L of milk per day, distributed in 40 dairy goats farms in some areas of the states of Coahuila and Durango which conform the Region Lagunera. A total of 18 students have been participating as social service providers, while 100 students have been involved as dairy goat practitioners, generating a total of 200 technical visits while small scale basic research studies. The Region Lagunera is one of the most important dairy goat producing areas in Mexico. Therefore both technical and academic activities through this kind of projects, should help to increase goat production throughout environmental-responsible while sustainable actions. The last should promote not only an escalation in the efficiency of goat milk production for human consumption and transformation but also an increase in the quality of life of marginal producers devoted to goat production under semiarid environments.

Key Words: extension, dairy goat, farmer

TH206 Relationships among performance parameters and beef bull sale price. J. L. Gleason, M. A. McCann, and S. P. Greiner*, *Virginia Polytechnic Institute and State University, Blacksburg.*

Data from state central bull test program sales in Virginia was utilized to evaluate the relationship between sale price and various measures of performance. A total of 1,869 bulls sold between 2002 and 2011at 2 locations were included in the analysis. Bulls at both locations were developed in test groups for either 112 or 133 d. Breeds included Angus (AN, n = 1645), Simmental (SM, n = 140), and Simmental × Angus (SA, n = 84). Sale price differential (PD) was calculated as the deviation in individual sale price from contemporary group mean (by location, breed, test group, year). Partial correlations adjusted for effects of year, location, and test group revealed positive associations between PD and final BW, ADG, and yearling wt (YW) for all breeds (r = 0.22 to 0.50). Only AN exhibited a relationship between PD and birth weight (BW; r = −0.14). Expected progeny differences (EPD) for calving ease direct (CED), BW, weaning wt, YW, and milk (MM) were similar in magnitude for their relationship with PD in AN bulls (r = 0.29, −0.29, 0.21, 0.29, and 0.22 respectively). In contrast, YW was the single growth EPD related to PD for SM (r = 0.19), while MM EPD had a strong association with PD in SA (r = 0.39). Relationships between carcass measures and PD were generally smaller in magnitude compared with growth traits. Best fit multiple regression equations to predict PD included different variables between breeds with the majority of the variation in PD for AN accounted for by YW, CED EPD, ADG and YW EPD (R^2 = 0.53), while YW, ADG and BW were most relevant for SM (R^2 = 0.29). Comparison of prediction models derived from AN bulls sold in 2010 and 2011 revealed selection index EPDs of beef value and weaned calf value to be of more importance in explaining variation in PD compared with models utilizing the same variables in earlier years. These results substantiate the importance of performance criteria in bull selection decisions, and indicate a time lag exists between the introduction of new selection technology and adoption by the commercial cattle industry.

Key Words: performance, price, beef

TH207 Factors affecting sale price of bulls sold in the Florida Bull Test. V. R. G. Mercadante*, D. D. Henry, F. M. Ciriaco, N. DiLorenzo, and G. C. Lamb, *North Florida Research and Education Center, University of Florida, Marianna.*

The annual Florida Bull Test (FBT) was initiated in 2000 to provide producers with a source of bulls that have been thoroughly evaluated at the same location. It provides an opportunity for seed stock producers to advertise their breeding programs and marketing bulls promoting awareness and understanding of the latest animal breeding concepts while showcasing superior genetics in the southeast United States. Since 2010 changes were made to the test to obtain individual feed efficiency (FE) data in addition to performance data. Daily feed intake was monitored using the GrowSafe system at the North Florida Research and Education Center Feed Efficiency Facility (FEF). Bulls received free choice access to a corn gluten and soy hull based supplement, grass hay, and water targeting a 1.6 kg ADG. After a 3-wk adaptation period, mean of 2 unshrunk weights were obtained on d 0, 28, 56, 84, and 112. On d 56 bulls were moved from the FEF onto pastures where they remained, consuming a similar diet, until completion of the test. The procedure

CORR of SAS was used to asses traits associated with increased sale prices for each of 3 years. The number of bulls offered for sale was 30, 45, and 58 for 2010, 2011, and 2012, respectively. Mean sale price was $2,247, $2,851, and $3,221 for 2010, 2011, and 2012, respectively. In 2010, sale prices were positively correlated ($P < 0.05$) with DMI during the first 56 d on test (DMI), bull age at the sale (AGE), BW on d 112 (BW), ADG, weight per day of age (WDA), final index (INDEX; sum of ADG and WDA) and frame score (FS), GF tended ($P = 0.08$) to be negatively correlated with sale price, whereas RFI was not correlated ($P > 0.10$) with sale prices. In 2011, sale prices were positively correlated ($P < 0.05$) with DMI, GF, BW, ADG, WDA, INDEX, whereas FS, RFI, and AGE were not correlated ($P > 0.10$) with sale prices. In 2012, sale prices were positively correlated ($P < 0.05$) with DMI, BW, ADG, WDA, INDEX, whereas FS, RFI, GF, and AGE were not correlated ($P > 0.10$) with sale prices. We conclude that performance traits such as DMI, ADG, and WDA had greater effects on sale price of bulls than FE and age of bulls sold in the FBT.

Key Words: Florida Bull Test, residual feed intake, performance

TH208 Moos, Ewes and More: A public education event. E. L. Berg*, S. M. Ostby, K. A. Vonnahme, S. Wagner, S. E. Anderson, J. D. Hayden, L. A. Christianson, C. Stoltenow, and K. B. Koch, *North Dakota State University, Fargo.*

According to USDA estimates, only 0.3% of the US population claims farming as their primary occupation. In ND, 5% of the population identifies themselves exclusively as farmers, but in Fargo, the state's largest city and the location of North Dakota State University, the estimate falls to 0.4%. Consequently, there is a diminishing awareness among the general population about the origins of food and fiber. In an effort to educate an interested public about the influence of animals in their daily lives, the NDSU Department of Animal Sciences developed Moos, Ewes and More in 2010. This annual open house event is designed to reconnect the public with animal agriculture through interactive demonstrations, product sampling, and education. Structured demonstrations of sheep shearing, cow milking, and farrier work alternate every 30 min, while on-going demonstrations include wool spinning and ultrasonography of pregnant ewes. Food samples consist of ice cream and a variety of meat products. Interactive activities include bottle feeding calves, collection and microscopic viewing of rumen contents from fistulated cattle, performing mock surgeries on stuffed animals, roping plastic steers, and educational scavenger hunts. Faculty, staff, and students answer questions and educate attendees at stations displaying livestock and their products. There is a booth explaining animal welfare vs. animal rights and the NDSU Institutional Animal Care and Use Committee compliance officer is present to answer questions about the use of animals in research. The importance of animals in the development of life saving medical advances and the training of physicians in emergency support procedures are presented by experts from a local hospital. Animal Sciences faculty and staff participation throughout the past 3 years has ranged from 78 to 88%, and approximately 45 undergraduate and graduate students participate each year. The number of attendees has increased from 497 in 2010 to 989 in 2012. Providing an open forum for dialog and education between animal scientists and the public is essential in order for those without farm experience to understand the benefits of animal agriculture and research.

Key Words: education, public, welfare

TH209 Survey of central North Carolina horse owners regarding parasite anthelmintic resistance. N. C. Whitley*[1], B. Chase[2], and S. B. Routh[1], *[1]North Carolina A&T State University, Greensboro, [2]Guilford and Rockingham County Extension Service, Greensboro and Reidsville, NC.*

Gastrointestinal nematode anthelmintic resistance is a growing issue in the horse industry. One cause of resistance is thought to be overuse of anthelmintics such as in routine, rotational deworming such as that recommended in the past. To determine the current knowledge of horse owners in central North Carolina regarding anthelmintic resistance and deworming, a survey was conducted through an email list belonging to an agent with the North Carolina Cooperative Extension Service. The survey was part of one issue of the agent's monthly equine email newsletter and was sent out to over 400 horse owners primarily in the central region of North Carolina. The survey consisted of open-ended questions about parasite resistance and fecal egg counting. Seventy-eight surveys were returned; however, 2 respondents did not fully complete the survey and 3 were duplicates, resulting in 73 valid surveys. Of those responding, 52% were concerned or very concerned about anthelmintic parasite resistance occurring on their farm, 15% were somewhat concerned and 33% were not concerned. Participants (65%) indicated they made changes on their farm to slow resistance though only 5% had parasite resistance and 45% did not know if they had parasite resistance on their farm; the remaining 50% did not feel they had parasite resistance on their farm. Fecal egg counting had been conducted on 65% of the farms at some point in time; for 17% it had been 3 mo or less, for 17% 4 to 6 mo, for 37% 7 to 9 mo, for 28% 10 to 12 mo and for 21% it had been over 12 mo since the last fecal egg count was conducted. When asked about deworming, for the 70% who indicated they routinely dewormed and rotated anthelmintics, 40% did so based on veterinarian recommendations, 15% did so using charts or calendars and 16% used fecal egg counts to decide about deworming. According to this informal preliminary survey of horse owners in central North Carolina, more training of horse owners and perhaps veterinarians is needed to have more widespread incorporation of best management practices for sustainable horse parasite management.

Key Words: horse, parasite, resistance