

Extension Education: Dairy and Livestock

504 A dairy safety program: Considering human and animal safety. M. A. Smith*, G. R. Hagevoort, and F. A. Rivera, *NMSU Ag Science Center, Clovis.*

The dairy industry in the Southwest has experienced a decade of expansion in regards to the number of milking cows and concomitant number of employees. In this process, a new management structure, historically absent from dairy farms with fewer employees, is being developed. It has been recognized that there is a need for middle management positions, responsible for training and supervising employees, much like positions established within other similar sized industries. In the past, the task of training and supervision of employees typically was that of upper management. With increasing employee numbers, this task is often delegated to employees with seniority. NMSU Dairy Extension was asked by producers to assist in providing training tools for large open lot dairies, permitting room for inclusion of dairy particular protocols. This has led to the development of a dairy safety training program consisting of a DVD and a manual (in English and Spanish) for on dairy training purposes entitled *Considering Human and Animal Safety: Dairy Safety Training for New Mexico Dairy Producers*. The format allows supervisors and managers the opportunity to establish safety protocols within their individual farms. The program is based on the notion that well trained workers have high regards for their own safety as well as that of the safety of others and the safety and well-being of the animals they provide for. The program can be regarded as an essential part of an overall Quality Assurance Program. The program raises awareness of unsafe or potentially harmful working conditions, which with early detection may take minimal correctional action. By presenting guidelines on how to safely handle dairy cows in various common situations on the dairy farm, as well as how to work with heavy equipment in a safe manner, management can train both new and current employees. Emphasis is put on understanding animal behavior as the basis for safely working with and around animals. Part II is currently being developed and will specifically focus on individual positions on the dairy such as: milkers, outside caretakers, feeders and calf raisers.

Key words: animal well-being, dairy quality assurance, employee safety training

505 Assessing a comprehensive dairy cattle economic program for practicing dairy veterinarians. G. M. Schuenemann*, D. Shoemaker, D. Breece, S. Bas, and J. D. Workman, *Department of Veterinary Preventive Medicine, The Ohio State University, Columbus.*

The purpose of the study was to assess the effectiveness of a team-based educational program designed to enhance the flow of applied economic information to dairy veterinarians. A comprehensive dairy cattle economic program was developed and participants from 11 veterinary practices located in 5 States (IN, NY, PA, NM, and OH), serving an estimated 186,150 dairy cattle in 469 herds, participated in the advanced dairy cattle economic modules (2 d each, ~40 h of learning). Financial statements (balance sheet, profit and loss); production and financial factors that affect business performance; financial ratios and business analysis; net farm income per cow (cost of production), milk pricing, economic decision tools (value of a pregnancy, number of milking times, income over feed cost, borrowing money); economics of uterine diseases and mastitis; grains and biofuels outlook; and transitioning the dairy farm to the next generation were discussed. Educational materials were delivered through in-class lectures followed by

case-based learning, group discussions, and participant presentations of out-of-class assignments. Attendees were assessed using pre- and post-tests of knowledge to determine the level of knowledge gained in both modules. Participants evaluated the program and provided feedback at the conclusion of each module. Veterinarians reported that the overall program, presentations and discussions were useful and of great immediate use to them. The presented materials and the educational delivery methods substantially increased the knowledge level of the attendees (18% increase from pre- to post-test scores; $P < 0.05$). Importance of knowing the costs of production, costs of diseases, business objectives (profitability, liquidity, and solvency), written record-keeping for small dairies, regular meetings with the production team, and the use of computerized decision-making tools were listed as learned concepts that participants can apply in their practices. Results suggested that both economic modules were relevant and effective; offering practical economic information with immediate field application.

Key words: dairy cattle economics, education, veterinary

506 III. Dairy calving management: Assessment of a comprehensive program for dairy personnel. G. M. Schuenemann*, S. Bas, E. Gordon, and J. Workman, *Department of Veterinary Preventive Medicine, The Ohio State University, Columbus.*

The purpose of the study was to assess the effectiveness of a comprehensive educational program (CEP) designed to improve calving management practices of calving personnel and communication within the farm team. Calving personnel ($n = 47$), attending an estimated of 13,100 cows from 12 Ohio dairies, attended the calving management program (~2 h of training and ~1 h of demonstration). Bovine reproductive anatomy, behavioral signs of normal parturition (stages 1–3), dystocia (presentations and positions), hygiene practices during the assistance procedure, strategies for intervention (when and how to intervene), record-keeping, communication (when to call for help), and newborn care were discussed. Post-training follow ups (2 per yr) were available for participating herds. The impact of the CEP on stillbirth was assessed in 1 herd (292 births). Educational materials were delivered through lectures followed by group discussions and hands-on demonstrations. Attendees were assessed using pre- and post-tests of knowledge to determine the level of knowledge gained during the training program. Participants evaluated the program and provided feedback at the conclusion of the program. Dairy personnel reported that the overall program, presentations, and discussions were useful. The presented materials and demonstrations substantially increased the knowledge level of the attendees by 16.1 percentage points from pre- to post-test scores ($P < 0.05$). Identification of cows in need of calving assistance, hygiene practices at calving, record-keeping, and communication with the farm team were reported as learned concepts. The follow-up assessment with participant herds revealed that they were able to implement the learned skills, communicate calving records with the farm team, and have written calving protocols. The incidence of stillbirth was reduced by 9 percentage points (from 15.5% to 6.5%; $P < 0.05$). Results suggested that the CEP was relevant and effective, offering information with immediate field application. Impact outcomes such as calf-dam survival, herd performance (fertility), and long-term adoption of practices need further investigation.

Key words: calving management, education, stillbirth

507 Virtual town hall meetings as a method for engaging the public and dairy industry on contentious topics: The case of tail docking. D. M. Weary*, C. Schuppli, and M. A. G. von Keyserlingk, *University of British Columbia*.

As dairy farm numbers decline and the general population becomes increasingly urbanized, there is increasing scope for producer practices to fall out of step with public values. One method to engage producers and the public is through virtual town hall meetings where participants can state their views and see the perspectives of others. Here we report on the results of our 'Cow Views' on-line engagement designed to create discussion on tail docking and document the reasons participants put forward for and against the practice. A total of 178 people participated; 30% were producers, 23% were veterinarians, 25% had no experience with the dairy industry and 22% included a mixture of teachers, students and industry professionals. Approximately 79% of participants were opposed to docking. Responses varied with participant demographics (e.g., females were more likely than males to oppose docking), but in every demographic sub-group (e.g., by sex, age, country of origin and dairy production experience) the majority of respondents were opposed to tail docking. Common reasons for opposition to docking included the lack of scientific evidence that docking improves cleanliness or udder health, that docking is painful for cows, that docking is unnatural and that tails are important for controlling flies. Some respondents in favor of docking also cited cow cleanliness as an issue, as well as concerns about milker comfort. These results can be used to better target extension efforts (e.g., improving producer education on the lack of positive effects of docking on cleanliness and udder health, and design features of milking parlor that prevent contact with the tail). More generally, the results illustrate the use of this type of on-line discussion in providing a safe and productive format for producers, industry professionals and the public to share perspectives on contentious topics.

Key words: animal welfare, attitudes, survey

508 The Missouri Show-Me-Select Replacement Heifer Program. D. A. Mallory*, J. M. Nash, M. F. Smith, S. E. Pooock, and D. J. Patterson, *University of Missouri, Columbia*.

The Missouri Show-Me-Select Replacement Heifer Program was designed to improve reproductive efficiency of beef herds in Missouri and increase individual farm income. The program objectives include: 1) a total quality management approach for health and management of heifers from weaning to late gestation; 2) increased marketing opportunities for and added value to Missouri raised heifers; and 3) the creation of reliable sources of quality commercial and purebred replacement females. The program was initiated as a pilot project in 2 regions of Missouri in 1997 with 33 farms and 1,873 heifers. During the past 14 years, 703 farms enrolled 91,776 heifers in the program. Regional extension livestock specialists serve as coordinators of the program locally and work closely with the 205 veterinarians involved with the program state wide. State specialists provide program support to regional extension field staff and participating veterinarians. The reproductive goals for heifers enrolled in the program are aimed at improving breeding performance during the heifers' first breeding period, minimizing the incidence and severity of dystocia, with the resulting delivery of healthy, vigorous calves, and successful rebreeding of heifers during the subsequent breeding season. Heifers are now eligible to qualify as Tier 2 replacements on the basis of minimum accuracies of the heifer's sire for specified traits at the time of sale. The marketing component of the program facilitated the sale of 22,807

heifers in 107 sales across Missouri from 1997 through the fall sales in 2010. These sales generated interest from 7,063 prospective buyers that formally registered to buy heifers, and 2,560 individuals that purchased heifers from the various sales. Heifers from the program have now sold to farms in AR, AZ, CO, FL, GA, IA, IL, IN, KY, KS, LA, MO, NE, OK, SC, TN, and TX. Collectively, 107 sales have generated \$25,406,700 in gross sales. The program is estimated to have contributed \$50 million to Missouri's economy. The Missouri Show-Me-Select Replacement heifer Program is the first statewide on-farm development and marketing program of its kind in the US

Key words: beef cattle, heifer development, reproductive management

509 Enhancing knowledge and technology adoption in a misunderstood discipline: The weight trait project. M. L. Spangler*¹, E. J. Pollak², G. L. Bennett², K. J. Hanford¹, S. D. Kachman¹, L. A. Kuehn², W. M. Snelling², and R. M. Thallman², ¹*University of Nebraska-Lincoln, Lincoln*, ²*US Meat Animal Research Center, Clay Center, NE*.

Currently several commercial DNA marker panels are available for complex traits. In the fall of 2009, the American Angus Association integrated the results of an Angus-specific marker panel into their national cattle evaluation for carcass traits. Despite this advancement, there still exists tremendous confusion by producers as to the efficacy of DNA diagnostics. The Weight Trait Project (WTP) began in the summer of 2009 and was designed to address issues associated with creating and implementing DNA-based selection in conjunction with Expected Progeny Differences (EPD). The WTP is an ongoing unified effort among researchers, breed associations (n = 7), and seedstock producers (n = 20) to improve the process of developing and validating DNA tests and to investigate the infrastructure necessary for the flow of information required to deliver Marker-Assisted EPD to producers. The objectives of the current study were to illustrate methodology for incorporating DNA marker information into EPD predictions for the trait of weaning weight and develop mechanisms for disseminating this information to producers. To gauge changes in knowledge, practices, and behavior, a survey was sent to participants. The 17 respondents (85% return rate) indicated that collectively they own 20,125 beef cows. Increases in knowledge were rated from 0 (none) to 4 (significant). Mean survey results were 1.5, 2.8, 2.0, 3.4, 2.4, 2.7, 2.8, and 2.9 for EPD, genomics terminology, parentage verification, marker assisted selection, across breed genomic predictions, whole genome selection and panel development, test validation, and accuracy improvement of EPD, respectively. Producers indicated adoption of methods to improve the following production practices: making mating decisions (40%), efficient use of DNA technology (75%) and selection (bull buying) decisions (47%). Mean responses for changes in behavior (1 = none; 5 = very likely) were 3.9, 3.8, 4.3, and 4.6 for making more informed selection decisions, better educating their clientele, feeling comfortable with terminology, and desiring to stay abreast of DNA technology, respectively.

Key words: beef cattle, genomics, producer education

510 Evaluating cow efficiency at the producer level: The Northwest Minnesota Beef Improvement Program. R. S. Walker*¹, S. L. Bird², G. I. Crawford³, and A. DiCostanzo⁴, ¹*LSU AgCenter, Homer, LA*, ²*University of Minnesota North Central Research & Outreach Center, Grand Rapids*, ³*University of Minnesota Extension, Hutchinson, MN*, ⁴*University of Minnesota, St. Paul*.

Measuring cow efficiency through cow size and calf weaning weight may provide opportunities to cull more strategically to improve herd efficiency. With the increase in production cost, cow size, and depressed cattle markets, profitability is narrow for the cow/calf producer. In Northwest Minnesota, bovine tuberculosis (TB) was recently detected in 12 beef herds. This resulted in a downgrade in Minnesota's TB status, which significantly impacted movement and testing regulations and caused additional costs for marketing animals. The Northwest Minnesota Beef Improvement Program was developed to provide assistance for producers by evaluating cow size and calf performance and develop strategies for improving cow efficiency. In addition, information gained would be used as educational tools for enhancing producer awareness on the impacts of cow efficiency on profit margins. Cow and calf production and BW data were collected from each herd and summarized with a follow-up consultation with each participating producer by the University of Minnesota Beef Team. In the evaluation process for measuring cow efficiency, adjustments (ADJ) were made for cow BW (BCS 5.0 and age 5.0 yr) and calf BW (205 d of age) at weaning. In the fall of 2009, 9 beef producers and over 1,250 beef cow-calf pairs among 5 breeds were represented. Breeds consisted of Angus, Angus cross, Hereford, Gelbvieh, and Simmental. Means \pm SD from all herds combined for cow age, cow ADJ BW at weaning, cow BCS at weaning, calf ADJ BW at weaning, and calf ADJ BW as a percentage of cow ADJ BW at weaning were 5.5 ± 2.8 yr, 626 ± 57.3 kg, 5.3 ± 0.7 , 266 ± 35 kg, 0.43 ± 0.06 , respectively. Mean cow and calf ADJ BW at weaning varied among herds ranging from 593 to 675 kg and 227 to 289 kg, respectively. Ranges in cow and calf ADJ BW means for cows with ADJ BW above the herd average compared with cows with ADJ BW below the herd average were 68 to 124 kg and -3 to 11 kg, respectively. Variations observed in calf weaning weight based on cow size across all herds indicate opportunities for commercial producers to improve herd efficiency through cow efficiency.

Key words: body weight, cow size, herd efficiency

511 The benefits of using StockPlan to assist producers make management decisions before and during dry spells or drought. M. J. McPhee¹, M. B. Whelan², B. L. Davies³, G. P. Meaker⁴, P. Graham⁵, and P. M. Carberry⁶, ¹*Industry and Investment NSW, Armidale, NSW, Australia*, ²*Southern Cross University, Lismore, NSW, Australia*, ³*Industry and Investment NSW, Paterson, NSW, Australia*, ⁴*Industry and Investment NSW, Goulburn, NSW, Australia*, ⁵*Industry and Investment NSW, Yass, NSW, Australia*, ⁶*Formerly Industry and Investment, Calga, NSW, Australia*.

The StockPlan workshop assists cattle, sheep meat, and wool producers explore the financial consequences of management options before and during dry spells or drought. An independent survey of 345 properties in the central western area of New South Wales, Australia was conducted. The survey found that 195 properties participated in a StockPlan workshop. The benefits achieved from the 195 properties indicated that 75% of respondents received at least one benefit from the StockPlan workshop: 63% improved ground cover, 25% reduced stress, 24% increased productivity, and 15% maintained or increased stocking capacity. The StockPlan workshop demonstrates how to use Drought Pack, Feed Sell Agist (FSA) Pack, and ImPack. Two case studies illustrate the assistance that producers receive. FSA Pack was used to assist cattle producers determine whether they should "feed," "sell," or "agist" cattle. A sensitivity analysis of the buying and selling options was performed. FSA Pack assisted the beef producers decide that the "sell" option had the lowest associated risk. The second case study used ImPack to evaluate 3 options: "sell 10% of stock"; "keep

and feed all stock"; or "sell progeny as weaners and keep and feed cows" for a mixed cropping and beef enterprise. A -year breeding herd re-structure was performed for each of the 3 options. The ImPack analysis based on a cash-flow analysis indicated that "sell 10% of stock" was a better option because it reduced interest payments early in the planning period and therefore assisted in reducing the overall debt.

Key words: case study, cash flow, sensitivity

512 Carcass and meat quality characteristics of exhibition swine. S. J. Moeller*, H. N. Zerby, K. S. Betts, M. J. Bishop, S. M. Crawford, M. D. Cressman, and A. S. Gress, *The Ohio State University, Columbus*.

The objective was to characterize performance and pork quality of barrows exhibited at the Ohio State Fair (OSF) from years 2000 to 2010. Data set one (MQP; n = 181 Duroc, n = 553 crossbred pigs) pigs were weighed (~20.5 kg), placed on test (~102 d) at the exhibitor's operation, and exhibited at the OSF based on start weight. Data set 2 (CH) included 419 grand- and reserve-champion barrows (n = ~42 annually) from 10 purebred and one crossbred population, and pigs were exhibited based on live weight. Carcass backfat (BF), loin area (LMA) and loin quality (visual color (C), marbling, firmness (F), and wetness (W) and Minolta L*) were recorded. Mixed models for MQP and CH included breed and year fixed effects for production traits. Year was included as a random effect for measures of pork quality. In the MQP, live weight (116 kg), average daily gain (0.94 kg/day), and BF (20 mm) were not different between Duroc and crossbred pigs; however, crossbred carcasses had greater LMA (48.3 vs. 45.3 cm²; $P < 0.001$) and percent carcass lean (53.5 vs. 53%; $P < 0.05$) resulting in a greater rate of lean growth per day on test (0.40 vs. 0.39 kg/day; $P < 0.01$) than the Duroc. Loins from MQP Duroc carcasses were darker based on visual color (2.7 vs. 2.3; $P < 0.001$) and L* (55.2 vs. 56.3; $P < 0.001$) measurements and had a firmer visual appearance (2.2 vs. 1.9; $P < 0.001$) with a less exudative appearing surface (2.2 vs. 1.9; $P < 0.001$). Lean growth rate of MQP barrows, after the first year (0.32 kg/day) were variable, ranging from 0.38 to 0.42 kg/day, likely an indication of year-to-year variation in both genetics and weather conditions. In the CH group, LMA of crossbred (57.9 cm²) and Hampshire (56.7 cm²) barrows were greater ($P < 0.01$) resulting in a greater percentage carcass lean (57.3 and 56.6%, respectively) when compared with the other breeds. Carcasses in MQP and CH competitions with visual scores of 1 for C, F, or W were disqualified, resulting in 29 and 30% of MQP and CH loins, respectively, disqualified across the period. Results indicate that exhibition swine represent a significant challenge for packers due to the high proportion of pale, soft and or exudative pork produced.

Key words: exhibition, pork quality, swine

513 SowBridge: A breeding herd distance education program allowing on-farm delivery. M. H. Whitney*, *University of Minnesota Extension, Mankato*.

The US pork industry has changed significantly the past 30 years. Small farrow-finish operations have been largely displaced by larger specialized production systems. While decision makers still attend educational events, employees often have few opportunities to increase their educational level. SowBridge was designed for owners, managers, employees, and consultants involved with breeding, gestation, and farrowing operations. The program is coordinated through the extension programs of U of Minnesota, U of Iowa, U of Nebraska, South

Dakota State U, Ohio State U, Purdue U, U of Illinois, Kansas State U, Michigan State U, U of Nebraska, and North Carolina State U. Participants in the program receive a CD in the mail 1 week before each monthly session, containing a slide set of the presentation and supporting materials. Presenters are from participating universities as well as industry. Participants call at 11:30am CT to a toll-free telephone number. A moderator introduces the topic and speaker, then 30 min are designated for the presentation, followed by time for questions. During the presentation, the speaker explains the material while participants follow along on their own computers. A total of 167 participants from 19 states and 4 other countries have participated in the program the past 3 years. Participants include animal caretakers, breeding technicians, managers, owners, veterinarians, consultants, students, and ag educators. Number of participants per site has ranged from 1 to 12. When asked to provide a monetary value of the program for their production units, responses were: \$200 - \$500 (27%), \$500 - \$1000 (46%), and \$1000+ (27%). The most cited positive aspects of the program were the ability to receive information without travel and ability to use as quality training for employees. SowBridge is a distance education program that is effective in providing information directly to employees and managers in swine breeding and farrowing units, and can be utilized to reach individuals both nationally and internationally.

Key words: breeding, education, swine

514 Content appraisal: A tool for analyzing web content and its effectiveness. J. Nadeau¹, N. Heidorn², and N. Broady³, ¹*University of Connecticut, Storrs*, ²*Louisiana State University, Baton Rouge*, ³*University of Kentucky, Lexington*.

Effective website content that keeps clientele engaged includes short, concise snippets of information supplemented with pictures, videos, and related websites including links to related social media outlets such as YouTube, Facebook and Twitter. Translating research-based information into web based searchable content can be challenging for the traditionally trained research/extension professional. Content appraisal is a way to make your web information relevant and useful to clientele. This simple, qualitative content appraisal system will identify easy modifications to make website material more effective. This system provides a thorough evaluation of content and results in a report that focuses on key aspects of content strategy, identification of trouble spots, and provides recommendations for improvement. The criteria examined include knowledge level, interrelatedness, relevance, usability, actionability, and differentiation. Updates to improve impact may include linkages to relevant topics on other websites or social media, keeping items current, search engine optimization, increasing online discoverability, changes in formatting and writing style to increase overall readability, a clear call to action, and the incorporation of items that fill a unique need. eXtension (pronounced e-extension)'s first Community of Practice (CoP), HorseQuest, recently applied a content

appraisal process in an attempt to document the efficacy and impact of their web content. HorseQuest has produced approximately 1,277 articles, 495 news items, 1,130 published answers to ask-an-expert questions, 13 learning lessons, and 21 videos. Since its launch, there have been 1,658,539 total views. HorseQuest is the first CoP to implement the content appraisal system. This appraisal resulted in immediate and simple improvements to our web content, increasing the site's potential impact.

Key words: content appraisal system, extension, internet based learning

515 Challenges and benefits of the participation of youth in creating youth-friendly material: Horses and Humans for a Healthy Habitat. M. Philbrick, J. Nadeau*, and T. Hoagland, *University of Connecticut, Storrs*.

As a part of the program Horses and Humans for a Healthy Habitat, youth were recruited to evaluate if creating a youth-friendly brochure intended to instruct youth in good environmental practices with horses was beneficial to the youth. The youth worked with a knowledgeable environmental coordinator to create fact sheets and learning activities. They based their work on the adult version of the Horse Environmental Awareness Program in CT (HEAP). They meet in focus groups of 5–6 interested youth. To determine if these activities were educational for the youth, the youth (n = 30) were surveyed before the activities began and after they completed the teaching material. The survey consisted of groups of questions which covered 4 sections of HEAP and were answered on a Likert 5 class scale. The majority of participants were grade 7 or higher, however they ranged from grade 3 to 12. The majority of the youth (58%) owned horses and managed them at their own homes. Eighty-eight % of the youth participated in horse care. The greatest challenge was attendance due to lack of interest and busy school and horse schedules. Each youth did not answer each question, therefore the response numbers for each question varies. The distribution of the responses was evaluated by chi-squared analyses to see if the response distributions were different from random. In most cases, (10 out of 19 questions) the youth answered the questions in a distribution that would indicate they already knew something about the topic. Yet in all cases (19 questions), after developing the learning material the youth responded with a distribution of responses that clearly indicated that they had learned from the activity and more of the distributions were found (18 out of 19 questions) to be significantly different from random at $P < 0.003$ and clearly in the correct (increased knowledge of practice or increased environmental awareness) direction. Youth participating in focus groups to increase environmental awareness for a targeted group results in increased knowledge for the participants and generates useful products.

Key words: environment, extension, youth