Extension Education II

640   Assessing a team-based educational program designed to build communication skills for practicing dairy veterinarians. G. M. Schuenemann*[1], D. J. Klingborg[2], D. A. Moore[3], and J. D. Workman[1], [1]Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, [2]School of Veterinary Medicine, University of California, Davis, [3]Department of Veterinary Clinical Sciences, Washington State University, Pullman.

The purpose of the study was to assess the effectiveness of a team-based educational module designed to build communication skills for practicing dairy veterinarians. A comprehensive program on leadership and communication skills 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, attended the advanced module (~2 d and ~20 h of learning) in 2011. The program consisted of the following topics: insights of participants; communication styles; personality influences; group dynamics/effective teams; rationale and interpersonal skills in team problem solving; communication lab-survival; communication model; re-write messages; elements of effective listening; conflict management; critical thinking, decision making and priority setting; elements of effective management of meetings and facilitation; message mapping; and communication limitations. Educational materials were delivered through in-class lectures followed by case-based learning, group discussions, and participant presentations resulting from an out-of-class assignment. Attendees were assessed using pre- and post-tests of knowledge to determine the level of knowledge gained during the module. Participants evaluated the program and provided feedback at the conclusion of each module. Veterinarians (100%) reported that the overall program, presentations, and discussions were useful. Attendees found the presented information relevant for their work (neutral = 2.3%, agree = 38.3% and strongly agree = 59.4%), and of great immediate use to them (neutral = 1.7%, agree = 43.9% and strongly agree = 54.4%). The presented materials and the implemented educational delivery methods substantially increased the knowledge level of the attendees (13.6% points increase from pre- to post-test scores; $P < 0.05$). Importance of teamwork and communication styles, developing and improving messages, elements for effective management of meetings, and conflict management styles were listed as learned concepts that participants can apply in their practices. This program has important implications for dairy veterinarians because they are a vital source of information for dairy producers.

Key Words: communication, veterinary, continuing education

641   Assessing a team-based educational program on nutrition and reproductive management for small dairy producers. G. M. Schuenemann*[1], W. P. Weiss[2], and J. D. Workman[1], [1]Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, [2]Department of Animal Sciences, The Ohio State University, Wooster.

The purpose of the study was to assess the effectiveness of a team-based educational program designed to enhance the transfer of applied research-based practices to dairy producers and their veterinarians to enhance sustainability of small dairy operations. A comprehensive program on nutrition and reproductive management was developed and participants from 2 veterinary practices and 69 dairy producers (<100-cow herds), attended the on-farm modules (~6 h of learning). The nutrition program consisted of the following topics: corn silage harvesting (moisture content, particle size, cut length, and inoculants); silage management (spoilage); choosing feeds; and maintaining ration consistency. The reproductive program consisted of the following topics: estrous cycle, synchronization strategies (estrus detection and compliance to protocols); factors affecting reproductive performance; record analysis; and AI technique. Educational materials were delivered through on-farm lectures followed by case-based learning, and group discussions. Attendees were assessed using pre- and post-tests of knowledge to determine the level of knowledge gained during the module. Participants evaluated the program and provided feedback at the conclusion of each module. Dairy producers (100%) reported that the overall program, presentations, and discussions were very useful. Attendees found the presented information relevant for their work (neutral = 3%, agree = 45% and strongly agree = 52%), and of great immediate use to them (neutral = 13%, agree = 43% and strongly agree = 44%). The presented materials and the implemented educational delivery methods substantially increased the knowledge level of the attendees (23 percentage point increase from pre- to post-test scores; $P < 0.05$). Additionally, >80% of participants indicated that they were highly confident (>75%) that they will apply the new learning into their operations. Handling corn silage, value of reproductive management, effect of nutrition and health management on herd performance, assessment of feed prices before buying, and teamwork and communication were listed as learned concepts that participants can apply in their operations. This program has important implications for small dairy operations and their sustainability.

Key Words: small dairy herd, reproduction, nutrition

642   I. Interactive index to identify and rank risk factors affecting reproductive performance of lactating dairy cows under field conditions. S. Bas*[1], P. Federico[2], and G. M. Schuenemann[1], [1]Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, [2]Department of Mathematics, Computer Science, and Physics, Capital University, Columbus, OH.

Many factors influence the reproductive and productive performance of dairy herds, thus, profitability. It is common to observe large between-herd variation in pregnancy rate (PR) of lactating dairy cows. Successful identification of factors affecting reproductive performance at herd level can be challenging due to their multi-factorial nature. The objective was to develop an interactive dairy herd index (DI) to aid in decision making about reproductive management of dairy cows. The DI was developed to identify and rank risk factors (stillbirth, retained fetal membranes, metritis, mastitis, lameness, body condition score, estrus detection, conception risk, labor-cow ratio, and stocking density) affecting PR according to their weights. Novel components of the DI included: 1) Desirable values for the selected risk factors (DV; estimated from the literature as reference for desirable PR), 2) Contribution weights for individual risk factors (CW; computed using linear regression), 3) Relative difference [RD = (DV-value of individual risk factor from herd to be assessed)/DV], and 4) DI by component (DI = RD*CW), 5) Ranking of risk factors according to their DI, 6) Overall DI for the herd (Positive or negative values move around the DV). The incidence of selected risk factors, collected from on-farm records, is compared with the DV and their individual CW to obtain individual and overall DI. Additionally, the regression nature of the DI helps the decision makers to be aware of the CW of each risk factor on PR due to herd management. Often time dairymen, consultants, and veterinarians trouble-shoot poor

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reproductive performance within-herd and the incidence of risk factors and their CW on PR varies greatly from farm-to-farm. Therefore, ranking within-herd risk factors with greater CW on PR is critical to implement corrective strategies step-by-step. Through a mechanistic approach, we ranked real herd risk factors affecting PR according to their CW (e.g., stocking density).

Key Words: dairy herd index, risk factor, pregnancy

643   Using real-time futures market simulation to teach dairy risk management. M. E. Sowerby* and J. J. VanSickle, *University of Florida, Gainesville.*

Less than 5% of all dairy producers use hedging strategies to manage price risk on their operations. To help producers gain knowledge, experience and confidence in using futures and options, a program featuring FACTSim, a financial and agricultural commodity trading simulator which uses real-time market data, was developed. FACTSim gives producers the opportunity to apply risk management concepts without losing real money. By using FACTSim, producers have gone beyond concepts to put together marketing goals to service farm debt needs and profit strategies to realize their farm goals. In the process of learning the fundamentals behind primarily milk, corn and soybean market movement, dairy producers have also become better at advanced ordering feed and using livestock gross margin (LGM)-Dairy insurance. Producers who have been involved in the program are now using futures options to hedge, gaining savings on advanced ordered feed and finding peace of mind using LGM-Dairy insurance.

Key Words: risk management, futures market, FACTSim

644   A decision support tool for investment analysis of new dairy housing facility construction. R. A. Black* and J. M. Bewley, *University of Kentucky, Lexington.*

The objective of this research was to develop a decision support tool, in the form of a user-friendly dashboard, for investment analysis of new dairy housing facility construction. User inputs included milking herd size, daily milk yield per cow, long-term milk price (MP), daily lactating cow feed cost, hourly labor cost, time to move cows, SCC bonus structure, SCC, and clinical mastitis and lameness incidence rate. New facility inputs included per cow barn cost (CBC), bedding cost (BC) and usage rate, tax rate, discount rate, interest rate, predicted daily increase in production per cow (PPC), predicted time to move cows, predicted time to stir the pack or rake stalls, and predicted reduction in SCC (PSCC), lameness incidence (PL) and clinical mastitis incidence (PCL). Investment analysis outputs included net present value (NPV), internal rate of return (IRR), breakeven barn cost, and payback period (PP). Model assumptions were obtained from published literature and farm surveys. This dashboard did not account for manure handling or culling costs. To compare alternative facilities with all model assumptions held equal except CBC, CBC were set at $850 per cow space for a compost bedded pack barn (CBP), $1,306 for a freestall barn with mattresses (FSM), and $1,021 for a freestall barn with sand (FSS). The NPV, IRR, and PP for the alternative facilities were CBP: $5,042, 9%, and 6.1y, respectively; FSM: $5,673, 9% and 6.8y, respectively; and FSS: $27,844, 13%, and 5.1y, respectively. A breakeven analysis was conducted for each of the 3 systems that would return a NPV of zero by changing BC, CBC, MP, PPC, PSCC, PL, or PCL. Results are depicted in the table below.

Table 1. Breakeven analysis for each of the 3 systems

System	BC	CBC	MP	PPC	PSCC	PL	PCL
CBP	$566	$909	$18.24	1.9kg	22.8%	44.1%	29%
FSM	$167	$1,061	$21.80	2.4kg	NA	NA	NA
FSS	$578	$1,214	$16.67	1.8kg	55.2%	80.8%	29%

Key Words: economic dashboard, compost bedded pack barn, freestall barn

645   Quantifying the effect of an extension programme (InCalf) on the reproduction performance of New Zealand dairy herds using a randomized controlled study. T. S. Brownlie*[1,2], J. M. Morton[3], C. Heuer[2], and S. McDougall[1], [1]*Cognosco, Anexa Animal Health, Morrinsville, New Zealand,* [2]*Epicentre, Institute of Veterinary, Animal and Biomedical Sciences, Massey University, Palmerston North, New Zealand,* [3]*Jemora Pty Ltd., Geelong, Victoria, Australia.*

There has been a national decline in the herd average reproductive performance and an increase in between herd variation of the New Zealand dairy herd. A national reproductive extension program (InCalf) has recently been introduced. A study was established to quantify the effects of this program on the reproductive performance of enrolled herds as well as benchmarking the reproductive performance of the national herd. The study was a multi-herd, multi-year randomized controlled study in 4 key dairy regions of New Zealand. In total, 168 herds were ranked based on estimates of the proportion of cows pregnant in the first 6 weeks of the seasonal breeding programs ("6-wk in-calf rate") and randomly allocated to either 1 of 2 control groups (n = 95) or the treatment group (n = 73) that received a 12 mo series of structured meeting with trained advisors ('farmer action groups'). The herds were monitored in the year of the farmer action group and the subsequent year. Monitoring included collection of cow demographic data, BCS, heifer weights, all breeding and disease events and 180,000 pregnancy tests. Social science interviews were conducted to capture the attitudes, priorities and constraints perceived by farmers. Preliminary results indicate that the mean 6-wk in-calf rate for the control group remained similar across years at 67% (95% CI: 66–68). The median 3 week submission rate (i.e., proportion of the herd bred in the 1st 3 weeks of the breeding program) remained at 81% (95% CI: 80–82) across years but the median conception rate to first breeding declined to 48% (95% CI: 47–49). A multivariable model including biophysical and demographic explanatory variables (including region and season) found allocation to treatment was associated with a small but not statistically significant increase in 6-wk in-calf rate. More variation was explained by reproductive performance at allocation and variation between herds was greater than between years. Determinants of changes in herd reproductive performance will be explored to refine expectations and strategies for delivery of extension programs.

Key Words: dairy, extension, reproduction

646   Stochastic simulation of the impact of commodity price variation on mastitis costs. D. Liang*[1], M. M. Schutz[2], and J. M. Bewley[1], [1]*University of Kentucky, Lexington,* [2]*Purdue University, West Lafayette, IN.*

The objective of this research was to evaluate the impact of varying commodity prices on 2012 mastitis costs. The dynamic, stochastic, simulation farm-level model described by Bewley et al. (2010) and constructed using Microsoft Excel (Microsoft, Seattle, WA) and the @ Risk Monte Carlo simulation add-in (Palisade Corp., Ithaca, NY) was used to calculate mastitis costs and associated sensitivities. Baseline

milk, replacement cow, slaughter, corn, soybean, and alfalfa prices were established using USDA NASS prices from 1971 to 2011 and stochastic predicted prices were modeled using FAPRI (Food and Agricultural Research Institution, Columbia, MO) estimates for 2012 to 2021. Feed cost was calculated using corn, soybean and alfalfa prices based on the USDA feed cost formula. A 163 cow US dairy, with default herd parameters established using DairyMetrics (Dairy Records Management Systems; Raleigh, NC) and published literature, was simulated through 5000 iterations. Mean (±SD) mastitis costs for parity 1 (P1) and later parity (P2) cows were 240.98 ± 31.95 and 192.08 ± 24.28 per case, respectively. For P1, costs (mean ± SD) were as follows: veterinary and drug costs (18.33 ± 1.83), labor costs (20.00 ± 2.00), discarded milk (55.21 ± 8.55), lost milk (93.78 ± 21.96), reduced days open (0.98 ± 1.78), culling (43.45 ± 10.80), and death (9.24 ± 1.27). In P1, mastitis costs were highly correlated with milk price ($r = 0.81$), moderately correlated with replacement price ($r = 0.464$) and feed cost ($r = -0.47$), and lowly correlated with slaughter price ($r = -0.18$). For P2, costs were as follows: veterinary and drug costs (18.33 ± 1.83), labor costs (20.00 ± 2.00), discarded milk (55.21 ± 8.55), lost milk (62.53 ± 16.56), reduced days open (0.98 ± 1.78), culling (25.11 ± 5.43), and death (9.93 ± 1.36). In P2, mastitis costs were highly correlated with milk price ($r = 0.88$), moderately correlated with feed cost ($r = -0.43$) and replacement price ($r = 0.28$), and lowly correlated with slaughter price ($r = -0.09$). These estimates may be used in on-farm mastitis decisions reflecting varying commodity prices.

Key Words: mastitis economics, commodity prices, stochastic simulation

647   A model: The Alabama Coalition for Farm Animal Care and Well-Being–A unified approach to animal care and well-being. R. Owen,* L. W. Greene, W. F. Owsley, and D. Wolfe, *Auburn University, Auburn, AL*.

The purpose of the Alabama Coalition for Farm Animal Care and Well-Being is to provide a unified approach to animal care and well-being across all farm animal species in Alabama. The Coalition serves as a body of knowledge for legislators and political groups on issues of farm animal care and well-being; provides a unified approach on animal care and well-being; is an advocate for a safe and abundant food supply; serves as a spokes-group for animal care in Alabama; is proactive in education for producers, consumers, and policy makers on animal care and well-being; provides a science perspective on issues affecting animal agriculture; provides training forums on issues of animal agriculture to producers, and regulators; is a forum of consensus building on animal agriculture. The governance of the Coalition is by a board of trustees (BOT) with an executive committee (EC) supported by a well-founded membership. The BOT consists of one voting member from each of the full-member partners of the Coalition. The EC consists of a president, vice-president, secretary-treasurer, and 4 directors at large. The Coalition membership consists of 1. full member: farm animal related organizations directly involved with animal agriculture and Alabama Land Grant Universities agriculture programs and Colleges of Veterinary Medicine, and 2: associate member: organizations indirectly involved with animal agriculture. Two major standing committees of the Coalition are (1) Education and (2) Legislative. The education committee works for the development of educational programs for stakeholders. The legislative committee provides a linkage to the state's legislative activities effecting farm animal care and well-being. Through the educational efforts of the Coalition, the Animal Agriculture 101 program, a training course in basic concepts of animal care and well-being, was delivered to educate law enforcement on adequate farm animal care. The course creates a resource for local officials in dealing with animal care complaints. The Coalition member organizations were an integral part in passing Alabama's HB561: Animal Industry Bill, a bill which strengthens the authority of the state veterinarian regarding setting the standards and procedures for animal protection within the state.

Key Words: well-being, coalition, welfare

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