

Show-Me-Select heifers carrying AI-sired pregnancies sold for an average sale price per heifer of \$2,437, adding \$195 per heifer; Tier Two Show-Me-Select heifers carrying natural-service sired pregnancies sold for an average sale price per heifer of \$2,371, adding \$129 per heifer; and Tier Two Show-Me-Select heifers carrying AI-sired pregnancies sold for an average sale price per heifer of \$2,664, adding \$422 per heifer. The Missouri Show-Me-Select Replacement Heifer Program is the first statewide on-farm beef heifer development and marketing program of its kind in the U.S. Impact on Missouri's economy that resulted from the past 18 yr of the Show-Me-Select program now exceeds \$110M.

**Key Words:** added value, beef heifer, extension program  
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and 126 producers provided enough information to allow the researchers to calculate the costs of pre- and post-milking teat disinfectants per cow per day, respectively. Two hundred seventeen producers provided the researchers enough information to determine the cost of intramammary antibiotics per mastitis case. Only 52 and 3 producers provided enough information to calculate the costs of environmental and contagious mastitis vaccines per cow, respectively. When estimating the cost of clinical and subclinical mastitis, 241 and 208 producers provided a numerical estimate, respectively. Remaining producers either did not know or did not provide an estimate. These results provide new insights into producer perception of mastitis and milk quality economics.

**Key Words:** costs, mastitis, milk quality, SQMI  
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**0585 Perceived mastitis costs and milk quality management practices among Southeastern United States dairy producers.** D. T. Nolan<sup>\*1</sup>, C. Blakely<sup>2</sup>, P. D. Krawczel<sup>2</sup>, C. S. Petersson-Wolfe<sup>3</sup>, G. M. Pighetti<sup>2</sup>, A. Stone<sup>1</sup>, S. Ward<sup>4</sup>, and J. M. Bewley<sup>1</sup>, <sup>1</sup>University of Kentucky, Lexington, <sup>2</sup>University of Tennessee, Knoxville, <sup>3</sup>Virginia Tech University, Blacksburg, <sup>4</sup>Mississippi State University, Mississippi State.

Researchers from four universities in the southeastern United States completed 175-question surveys on 282 farms in TN ( $n = 83$ ), KY ( $n = 96$ ), VA ( $n = 96$ ), and MS ( $n = 7$ ) from June 22, 2014 to June 21, 2015 as a part of the Southeast Quality Milk Initiative project. The objective of this study was to analyze questions focusing on the costs associated with milk quality management and to quantify dairy producer estimates of mastitis costs. The MEANS procedure in SAS 9.3 (SAS Institute, Cary, NC) was used to summarize costs of pre- and post-milking teat disinfectants, intramammary antibiotics for mastitis treatment, vaccinations, and producer estimates of subclinical and clinical mastitis costs. The average costs associated with specific management practices and producer estimates of mastitis costs are presented in Table 1. One hundred twenty-four

**0586 Development of a web-based calendar tool for scheduling beef cow management activities.** D. Poddaturi<sup>1</sup>, S. Johnson<sup>\*2</sup>, G. R. Dahlke<sup>1</sup>, D. A. Blasi<sup>3</sup>, and G. Hanzlicek<sup>4</sup>, <sup>1</sup>Iowa State University, Ames, <sup>2</sup>Kansas State University, Colby, <sup>3</sup>Department of Animal Science and Industry, Kansas State University, Manhattan, <sup>4</sup>Kansas State Veterinary Diagnostic Laboratory, Manhattan.

Extension efforts often remind producers of timely management practices and their value. Recommendations must revolve around presumed average time of activities, such as calving and weaning. The objective of the current project was to develop a web-based cow/calf management tool to create a customizable yearly production calendar. The Management Minder (MM) was designed for beef cattle producers to facilitate the timely implementation of routine management steps to optimize health, nutrition, reproduction, and general management. The MM helps beef producers schedule routine activities based on default intervals from the appropriate date category (calving/breeding, weaning, grass turnout, and receiving cattle), and communicate these events to other members of the management team. An automatic portion adds all of the activities in a particular category and a check box is used

**Table 0585.**

**Table 1: Average cost estimates among dairy producers for mastitis control practices and perceived costs of mastitis cases.**

	Mean	Standard Deviation	Median
Pre-dip cost/cow/d	\$0.04	\$0.04	\$0.03
Post-dip cost /cow/d	\$0.06	\$0.05	\$0.04
Intramammary antibiotic cost/mastitis case	\$14.85	\$10.84	\$12.67
Environmental vaccine cost/cow/lactation	\$3.43	\$4.60	\$3.00
Contagious vaccine cost/cow/lactation	\$3.30	\$1.98	\$3.60
Cost estimate of clinical mastitis <sup>1</sup>	\$288.00	\$520.25	\$175.00
Cost estimate of subclinical mastitis <sup>2</sup>	\$301.00	\$746.83	\$150.00

<sup>1</sup>Cost estimate made by producer for a clinical case of mastitis

<sup>2</sup>Cost estimate made by producer for a subclinical case of mastitis

to eliminate those not needed. Activities can also be added one at a time in a manual build portion. The program emails an ics file of user selections that can be imported by OUTLOOK™, GOOGLE™, and YAHOO™ calendar systems. Thus automatic reminders are put in place so that adequate time is allowed for cow weight gain in the third trimester, AI breeding programs can be planned, or all needed supplies can be obtained in advance of processing days. Users register on the website <http://cowweb.exnet.iastate.edu/CowWeb/faces/> with a unique farm/ranch name. The application provides an option to register multiple users under the same operation. Other family/team members, consultants, or veterinarians can be given access to add events to the same farm/ranch calendar. Veterinarians can set up health programs in a calendar form for individual clients. The calendar showing the upcoming activities can be used for planning and to improve communication among team members. A dynamic database stores events for each particular farm/ranch so they can be automatically advanced to the next year, minimizing the time needed for set-up in subsequent years. Supporting information or references regarding best management practices for the selected activities are provided as web links and can be easily updated. Since the program was first made available in January 2016, user suggestions have been incorporated to improve the tool. The concept is applicable to many areas of plant and animal management that function in biological and environmental cycles. Users of this free tool have the opportunity to improve the timeliness of management activities, improve communication with partners, and reduce costs associated with forgotten or delayed management.

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**0587 Comparing the Penn State and NRC 2001 heifer ration programs.** L. K. Mitchell\*, and A. J. Heinrichs, *Pennsylvania State University, University Park.*

Formulating dairy heifer rations is an often overlooked aspect of farm feeding programs. The Penn State dairy heifer diet formulator (PSU-HDF) was originally developed to design and evaluate diets used in heifer research. The current objective was to evaluate differences between the PSU-HDF and the 2001 NRC program. Drawing from fundamental heifer studies at Penn State, the basis for diet formulation in PSU-HDF is N intake (g/kg of metabolic body weight) with a target of 1.67 g of N/kg BW<sup>0.75</sup>. In contrast, the NRC emphasizes the intake of crude protein (CP) and its fractions. Furthermore, the NRC recommends dairy heifer diets to meet certain dry matter intakes (DMI) in addition to meeting metabolizable energy (ME) requirements. Research at Penn State has demonstrated that varying DMI can produce similar average daily gains (ADG) provided the diet precisely meets the ME requirements. Therefore, PSU-HDF places more emphasis on

meeting ME needs and adjusts DMI as necessary. For a heifer at 6 mo weighing 200 kg targeting an ADG of 800 g, the NRC recommends a diet with 14.2% CP, 11.9 Mcal/d ME, and 5.2 kg/d DMI. Using PSU-HDF, the same heifer had her needs met by a diet with 13.6% CP, 11.7 Mcal/d ME, and 4.3 kg/d DMI. A heifer at 14 mo weighing 400 kg targeting an ADG of 800 g was recommended by the NRC to receive a diet with 11.3% CP, 20.1 Mcal/d ME, and 8.8 kg/d DMI. The diet for the same heifer using PSU-HDF was 13.1% CP, 19.7 Mcal/d ME, and 7.1 kg/d DMI. Comparing the output of these two models, we find that the NRC model often predicts 20% more DMI and 60 to 155 more g CP intake. The NRC recommends 0.2238, 0.2247, and 0.2247 Mcal/kg BW<sup>0.75</sup> of ME for heifers at 200, 300, and 400 kg, respectively, when targeting an ADG of 800 g. These values are consistently higher than PSU-HDF recommendations of 0.2199, 0.22, and 0.22 Mcal/kg BW<sup>0.75</sup> of ME for heifers with the same parameters. These results show consistent overestimation of nutrient requirements by the NRC program. According to our research trials using precision and ad libitum formulation, the PSU-HDF model will allow nutritionists to formulate diets to meet dairy heifer needs and reduce feed cost by feeding less protein and dry matter.

**Key Words:** dairy heifer, diet formulation  
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**0588 Motivations of calf care workers for sick calf identification and treatment decisions.** C. Crudo<sup>1</sup>, D. A. Moore\*<sup>2</sup>, J. A. Afema<sup>1</sup>, and W. M. Sischo<sup>1</sup>, <sup>1</sup>Washington State University, Pullman, <sup>2</sup>Department of Veterinary Clinical Sciences, Washington State University, Pullman, WA.

On large dairy farm operations and calf rearing facilities, identification and treatment of sick pre-weaned calves is in the hands of employees. Understanding the motivation behind why and how calf care workers make treatment decisions could help Extension educators and dairy advisors create more tailored messages about judicious antimicrobial use. The purpose of this project was to better understand decision making on these operations by assessing employee motivation using a standardized survey tool. Western United States dairy farms and calf ranches with > 200 pre-weaned calves were contacted through their veterinarian to participate in the study. A sample size of 96 individuals was estimated based on a prevalence of 0.5 for the dominant motivation type with a precision of 0.1 and 95% confidence. The survey tool was adapted from the Motivations Sources Inventory and included 10 questions on motivation for specific aspects of calf care with response categories referring to the five motivation types: 1. External, motivated by recognition from supervisor or coworkers; 2. Extrinsic, motivated by bonuses or other monetary means; 3. Intrinsic, motivated by one's belief system; 4. Internal, motivated by

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