

## Extension Education 2

**805 Bilingual audiovisual technology improves dairy animal care and quality assurance.** B. Butler\*, S. Torres, J. Valles, C. D. Reinhardt, and D. U. Thomson, *Kansas State University, Manhattan.*

The Beef Cattle Institute at Kansas State University (BCI) has developed bilingual educational tools based on audiovisual technology to improve technical knowledge within livestock operations. The Dairy Animal Care and Quality Assurance (DACQA) program is available in a package of 36 multimedia modules with a total length of 2hrs and 42 min of training material to train animal care givers in areas of animal health, productivity and well-being. This quality assurance program promotes the best management practices for dairy animal care and husbandry through each area of the milk production operation, including proper management of feedstuffs and nutrition; pharmaceutical usage and administration; cattle handling guidelines; identification; record keeping and animal marketing decisions. The information in the modules is presented in a simple and colloquial communication to assure effective transmission of information. Two of the DACQA modules (one module addressing animal health practices and one module addressing animal handling) were presented to 10 professional dairy care workers who had a preference for learning in either English (n = 7) or Spanish (n = 3); a 10-question examination with questions relating to each specific module was given before and after viewing each of the modules. Test scores improved by 28% from pre-viewing to post-viewing ( $P < 0.01$ ; pre-viewing score = 7/10; post-viewing score = 9/10); there was no effect of module or language preference or their interaction ( $P > 0.37$ ). These results concur with previous data we have generated which demonstrated a 25% increase in knowledge of beef quality assurance best management practices following viewing of this type of module. With the audiovisual technology available, the industry not only addresses current topics related to producing safe and wholesome dairy products, but also supports a welfare-centered and economically sustainable dairy industry.

**Key Words:** bilingual, dairy, training

**806 Impact of a practical dairy farm management training workshop on the knowledge level of participants.** E. Ashraf\*<sup>1</sup>, Z. Hayat<sup>1</sup>, M. Z. U. Khan<sup>2</sup>, S. U. Ansari<sup>1</sup>, I. Hussain<sup>1</sup>, F. A. Atif<sup>1</sup>, M. Arif<sup>1</sup>, and M. Luqman<sup>1</sup>, <sup>1</sup>University College of Agriculture, University of Sargodha, Sargodha-40100, Pakistan, <sup>2</sup>University of Veterinary & Animal Sciences, Lahore, Pakistan.

The dairy industry is an important part of the economy in developing countries. There is a dire need for trained human resources for the development of this sector. Five d training workshop was organized for demonstration of dairy management practices. Participants (n = 36) were randomly selected across the country. The objectives were to evaluate the knowledge level of participants after making them aware of the latest feeding and management techniques practiced in the dairy industry, and to identify factors that are directly related to their learning. The pre and post test each comprising of 20 multiple choice questions was given to the participants at the start and end of the training. There was a significant improvement in the knowledge level after attending the training since the Mean = 5.03,  $t = 9.39$ , SE = 3.21 with p-value < 0.1. On average there was a 25% increase in the marks of the participants. Complete regression model was run with the independent variables of age, experience, and education on the difference of the pre and post tests and model was statistically significant  $F(3, 32) = 2.75 P < 0.1$ . Age was the only significant predictor in the model and showed negative effect on the difference of marks of the participants, and explains 20% of the

total variance. This explained the phenomenon that as age increases the impact of training on the knowledge level decreases. Another regression model was run on the marks after the training. The model was statistically significant  $F(3, 32) = 4.20 P < 0.1$ . It was revealed that education level plays a central role in the knowledge improvement and was a good predictor which explained 28% of the total variance in the data. Correlation of the variables also confirmed the results and showed that only education is positively significantly correlated with the marks of the participants after completing training. The other 2 variables, age and experience, showed a negative relationship with the marks of the participants. It is concluded that older participants with lower education levels could not perform well in short training programs and need separate extensive and long-term training sessions.

**Key Words:** training, knowledge, dairy

**807 A stochastic evaluation of reproductive management programs for dairy herds.** J. O. Giordano\*, P. M. Fricke, M. C. Wiltbank, and V. E. Cabrera, *University of Wisconsin, Madison.*

A Markov-chain simulation model was developed to compare the net present value (NPV, \$/cow/d) generated by different reproductive management programs (RP) in a dairy herd. The daily NPV of a specific RP was calculated by adding the discounted expected monetary values (DEMVs) of that proportion of cows that become pregnant at each successive AI service until a maximum predefined DIM plus the DEMV of that proportion of cows not becoming pregnant to the RP. The DEMV for a lactation defined by DIM at pregnancy was calculated based on the value of milk produced, feed cost, expected value of a new born calf, and cost of culling. Economic, productive, and reproductive values were user-defined for each RP evaluated. The model sequentially estimated the percentage of cows eligible for breeding, becoming pregnant, and not becoming pregnant at each AI service based on the service rate (SR) and conception rate (CR) of each RP. Total AI service cost including pregnancy diagnosis (PD) was applied to all cows until pregnancy or culling for reproductive failure. For synchronized AI services, total cost was calculated by adding the individual cost of: treatments, labor, AI, and PD. Total cost for estrous services was calculated by adding the individual cost of heat detection, AI, and PD. A decision tree then compared the NPV for different RPs. A comparison among commonly used programs with typical reproductive values (Table 1) indicated that a Presynch-Ovsynch (PS-Ov) protocol with 100% TAI (A) for 1st service was stochastically dominant over RP (B) and (C). Utilization of this model by commercial dairy herds may facilitate selection of economically optimal RP based on farm-specific parameters.

**Table 1.** Net present value for commonly used reproductive programs

Program	1st AI		NPV (\$/cow/d)	NPV (\$/1000-cow/y)
	ES	TAI		
	(%)	(%)	Mean±SD (Range)	Difference from maximum
(A) 100% TAI PS-Ov & Ovsynch	-	100	[36,43,50] 6.93±0.03(6.87-6.99)	Max
(B) ES <sup>1</sup> + TAI PS-Ov & Ovsynch	[26,49,55]	[30,35,39]	[74,51,45] [20,30,41] 6.83±0.03(6.76-6.89)	-36,500
(C) 100% ES <sup>1</sup>	[45,55,65]	[28,33,36]	- - 6.81±0.02(6.77-6.84)	-43,800

<sup>1</sup>ES = estrous service, <sup>2</sup>Triangular distribution [min, most likely, max].

**Key Words:** economics, simulation, stochastic