

Enhancing Food Safety: Reaching a Large and Diverse Population Through Online Certification

Abstract

Beef Quality Assurance (BQA) is a program designed to educate U.S. beef producers on best management practices to ensure production of a safe, wholesome beef product and humane animal care. The program must be sufficiently nimble to rapidly incorporate the demands of an ever-changing food system. Animal Care Training, an online system <www.animalcaretraining.org>, was developed by The Beef Cattle Institute at Kansas State University to deliver BQA training and certification to U.S. beef producers via distance. The program has grown to over 16,000 users, with training modules delivered in English and Spanish, to beef producers throughout the U.S.

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Introduction

The use of digital, Web-based tools for delivery of Extension programming has grown dramatically in the past decade (Kallioranta, Vlosky, & Leavengood, 2006; Rhoades, Thomas, & Davis 2009; Kinsey, 2010). Course completion rates and learning outcomes for Web-based training curricula can equal those for similar material delivered in person (Langellotto-Rhodaback, 2010). Also, demand for distance learning opportunities is growing in rural areas, and Web-delivery is necessary to deliver high-quality educational content to many remote and sparsely populated rural areas (Sherfey, Hiller, Macduff, & Mack, 2000).

Beef Quality Assurance (BQA) is a program designed to educate all U.S. beef cattle producers on methods to ensure production of safe, nutritious, and wholesome beef and that animals are raised in a humane manner (BQA, 2010). The BQA program is authored by a panel of veterinarians, nutritionists, and ranchers from throughout the U.S. First established in the 1980's as a HACCP (Hazard Analysis and Critical Control Points) plan, the program originally focused on reducing injection-site abscesses and drug residues in beef, and this has subsequently been expanded to include extensive training on animal welfare and appropriate cattle handling practices.

The average age of beef cattle ranchers in the U.S. is estimated to be 58 years of age (USDA, 2007), with 33% of ranchers being 65 or older. However, there is no age bias regarding preferences for Web-based educational delivery (Fishel & Ferrell, 2010). Web tools have been used for dissemination of up-to-date, technical information for zoonotic disease awareness (Madsen & Tablante, 2013). Given the constantly changing nature of consumer perceptions and expectations of food producers, online resources offer the most expedient avenue to provide animal caregivers the most up-to-date information on modern food safety and

animal welfare practices.

Development of the System

Faculty in The Beef Cattle Institute at Kansas State University (BCI), a collaboration between K-State's Colleges of Veterinary Medicine and Agriculture, determined that the future of adult educational outreach demanded a software interface in which:

1. Users could access outside the normal restraints of the university enrollment system
2. Users could select from a menu of discreet training options which could be considered buying "pizza by the slice", rather than buying the entire "pizza"
3. Users could register to use the system, pay for access to the desired training, and immediately access the training without a lag period for administration
4. Users could complete training at their own leisure over a protracted time frame if needed
5. Users would receive a digital copy of a certificate upon completion of training
6. A record of each user's completion progress and certification would be retained

The BCI has developed a software program called Animal Care Training (ACT; www.animalcaretraining.org). ACT is an online certification system that:

1. Contains packets of multiple individual training modules, available in either English or Spanish, in the fields of:
 - a. Beef Quality Assurance
 - b. Dairy Animal Care and Quality Assurance
 - c. Humane Equine Management
 - d. Livestock Transportation
 - e. American Association of Bovine Practitioners Continuing Education
 - f. Livestock Marketing Association Animal Handling Training
2. Supplies online quizzes regarding the training materials at the end of each training module
3. Provides a content-specific certificate upon completion of a packet of modules
4. Stores a record of certification for those producers having completed the training
5. Sends out a notice to all producers in the system 3 years after certification to remind them to update their certification

A total of 36 individual modules were developed directly from the original BQA training manual. The modules range from 6 to 20 minutes in length and contain a blend of text, audio, still photographs, and video content. Content within the training includes:

- Biosecurity
- Herd health guidelines
- Eliminating injection sites in the top butt
- Avoiding antimicrobial residues in the meat
- Low-stress cattle handling
- Humane euthanasia
- Proper record keeping of drug use and treated animals
- Development of standard operating procedures
- Proper nutrition
- Disease prevention
- And many others

Currently, 16,720 beef producers from all 50 states and Puerto Rico have completed the BQA training and have become BQA certified.

The three keys to a successful distance education model are:

1. High-quality course content
2. High demand for course content
3. Satisfactory content-delivery method (Rader, 2012)

The BQA training material presented in the ACT system has been honed by experts in beef production and food safety for over 30 years; content quality is high and has been approved by pundits throughout the beef industry. Demand for the training is growing as the benefits of the BQA program are increasingly promoted by leaders representing all segments of beef production. Since initiation of the system in 2007, the quality of the user interface has been steadily improved through incorporation of new technologies and through trial and error.

Effectiveness of the system has been demonstrated by a consistent 25% increase in post-viewing vs. pre-viewing test scores (Reinhardt, Thomson, Retzlaff, Butler, & Valles, 2010), regardless of language preference of the learner, module content, or job history of the learner.

Vital Partners

Although Extension and university personnel are well-equipped to design and deliver expert educational content, we lack ready access to the 700,000 ranchers across the U.S. who make up the beef industry. For this reason, The Beef Cattle Institute has developed partnerships with producer groups who have ready and frequent contact with their membership and who provide the primary role of end-user contact and promotion of the BQA training system. A partial list of these partners includes:

- National Cattlemen's Beef Association
- Kansas Livestock Association
- Livestock Marketing Association
- Kansas Beef Council
- American Association of Bovine Practitioners

Conclusions

By becoming BQA certified and adhering to BQA practices, beef producers can send a unified, consistent message to the beef consuming public that they are producing safe, wholesome beef in a humane manner, using common best management practices across all operations. The Animal Care Training online certification system has proven itself effective and successful. The system continues to grow in both the number of users accessing the system and in the amount and diversity of content offered.

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