Extension Education I

339   The Missouri Show-Me-Select Replacement Heifer Program: A retrospective on marketing and sales. J. M. Nash,* N. T. Martin, J. M. Thomas, B. D. Mayhan, M. F. Smith, S. E. Poock, and D. J. Patterson, *University of Missouri, Columbia.*

The Missouri Show-Me-Select Replacement Heifer Program has improved reproductive efficiency and increased individual farm income for program participants. The objectives of the program include: 1) implementation of a total quality management plan to enhance health and management of replacement beef heifers; 2) improved marketing opportunities for participating producers and added value to Missouri-raised heifers; and 3) creation of reliable sources of quality commercial and purebred replacement beef heifers based on management, reproduction, and genetics. Over the past 15 yr, 719 farms enrolled 99,805 heifers in the program. Heifers undergo a prebreeding evaluation administered by a veterinarian before the breeding season, and are required to meet minimum management requirements, including herd health and vaccination schedules. Heifers meeting the minimum requirements for enrollment are classified as Tier 1 replacements. Heifers are distinguished as Tier 2 replacements based on the sire of a heifer meeting minimum accuracy requirements for specified traits at the time of sale, including: calving ease direct, calving ease maternal, weaning weight, carcass weight, and marbling. Data for sales from fall 2010 through fall 2011 were compared. Tier 2 heifers carrying AI sired pregnancies ($1,751) sold on average for $259 more per heifer than Tier 1 heifers carrying natural service sired pregnancies ($1,492). Similarly, Tier 1 heifers carrying AI sired pregnancies ($1,654) sold for $162 more per heifer than Tier 1 heifers carrying natural service sired pregnancies. To date, the Show-Me-Select Replacement Heifer Program facilitated the sale of 23,936 heifers in 113 sales from 1997 through December 2011. The aforementioned sales generated interest from 8,063 registered buyers and resulted in $27,348,050 in gross sales revenue. Show-Me-Select Replacement heifers have sold into 18 states, including AR, AZ, CO, FL, GA, IA, IL, IN, KY, KS, LA, MO, NE, OK, SC, SD, TN, and TX. The Show-Me-Select Replacement Heifer Program is estimated to have had a $60 million impact on Missouri's economy since the program's inception in 1997.

Key Words: heifer development, reproductive management, beef cattle

340   The Missouri Show-Me-Select Replacement Heifer Program: Prebreeding reproductive evaluation of heifers and subsequent pregnancy outcome after fixed-time AI. J. M. Thomas,* J. M. Nash, N. T. Martin, B. D. Mayhan, M. F. Smith, S. E. Poock, and D. J. Patterson, *University of Missouri, Columbia.*

The Missouri Show-Me-Select Replacement Heifer Program has resulted in improved reproductive efficiency and has increased individual farm income for program participants. The objectives of the program include: 1) implementation of a total quality management plan to enhance health and management of replacement beef heifers; 2) improvement of marketing opportunities for beef producers while adding value to Missouri-raised heifers; and 3) creation of reliable sources of quality commercial and purebred replacement heifers based on management, reproduction, and genetics. Over the past 15 yr, 719 farms enrolled 99,805 heifers in the program. Twenty-five regional extension livestock specialists coordinate the program, and work closely with the 212 veterinarians involved with the program statewide. Enrolled heifers must meet minimum management standards and follow approved animal health regimens. Prebreeding exams [reproductive tract scores (RTS)] are performed by licensed veterinarians before the breeding season. Additionally, initial pregnancy diagnoses must be performed within 90 d of the start of breeding and reconfirmed after the end of the breeding season. In recent years, program participants have increased use of fixed-time AI (FTAI) programs in their herds. Data collected from 2010 to 2011 were used to evaluate relationships between RTS and pregnancy outcome after FTAI. The reproductive tract scoring system ranges from 1 to 5: 1 = infantile; 2 and 3 = noncycling/prepubertal; 4 and 5 = cycling/pubertal. A summary of RTS and FTAI pregnancy rate (PR) for heifers evaluated from 2010 to 2011 is provided: RTS 5 (n = 1,816; FTAI-PR = 59.4%); RTS 4 (n = 1,535; FTAI-PR = 52.1%); RTS 3 (n = 1,571; FTAI-PR48%); RTS 2 (n = 189; FTAI-PR = 36.0%); and RTS 1 (n = 15; FTAI-PR = 0.0%). These data support the practice of establishing prebreeding criteria (e.g., minimum RTS = 3 before the breeding season) for identification of heifers that are good candidates for a FTAI program.

Key Words: heifer development, reproductive management, beef cattle

341   The Missouri Beef Project: An industry partnership designed to link economic incentives with technology adoption. D. J. Patterson,* D. S. Brown, S. E. Poock, and M. F. Smith, *University of Missouri.*

The beef industry in Missouri is a leading segment of the state's economy and efforts to increase the value of Missouri's cattle have widespread effects throughout the state. The Show-Me-Select Replacement Heifer Program changed production practices related to management of beef heifers in Missouri. Effects of these changes are realized by producers, veterinary practices, feed dealers, the pharmaceutical and AI industries, and related local economies. The addition of Tier Two to the Show-Me-Select Program arose from funding of 2 integrated project proposals funded by NIFA-AFRI in program areas that include Animal Reproduction and Prosperity for Small and Medium-sized Farms. These integrated project awards supported research and development of protocols to successfully inseminate beef cows and heifers at predetermined fixed times. Additionally, funding from these grants supported the initial transfer of fixed-time AI (FTAI) technology to the field coupled with use of genetically superior high-accuracy AI sires. Adoption of these technologies is resulting in 2 significant outcomes: Increased numbers of genetically superior females, and a similar increase in numbers of genetically superior steer mates. Increased domestic and global demand for high-quality proteins including beef, coincident with the decline in the US beef cow inventory, offers the potential to increase premiums for high-quality beef products. Stacking technologies (FTAI and high accuracy AI sires) sets the stage for a new programming effort focused on The Missouri Beef Project. This project streamlines production and marketing of cattle with a focus on high-quality endpoints. The project involves a partnership including the University of Missouri, Irsik and Doll Feed Yard (Garden City, KS), Pratt Feeders (Pratt, KS), Accelerated Genetics, Genex Cooperative, Select Sires Mid-America, and Certified Angus Beef. The project objectives are to: 1) assist beef producers in gaining access to markets for high-quality cattle, and 2) educate Missouri producers to understand and capture the greater economic returns available for high-quality cattle.

Key Words: High-quality beef, artificial insemination, high-accuracy sires

342   Impact of management practices on the value of heifers sold in Texas auction barns. K. Stutts,* M. Beverly, S. Kelley, and B. Freel, *Sam Houston State University, Huntsville, TX.*

The objective of this study was to evaluate the impact of management practices on the selling price of heifers in Texas livestock markets. Data were collected at 9 weekly Texas livestock auctions on 6,855 lots of heifers consisting of 42,376 head. The data were collected by trained livestock market reporters and included horn status, body condition, fill, health status, lot size, and selling price. An ANOVA was performed. Heifer characteristics were analyzed individually in a model that included BW and location as covariates. Least squares means were generated for each variable and separated based on predicted differences. All selling prices are reported in US dollars per 45.45 kg of BW. Mean selling price of polled ($127.46) heifers was greater ($P < 0.01$) than that of horned ($113.65) heifers and mixed (polled and horned; $125.50) lots. Differences in mean selling price existed among body condition categories as well. Heifers that were classified as very thin ($131.35) and thin ($129.33) had a greater ($P < 0.01$) mean selling price than heifers classified as average ($126.00), fleshy ($125.23) or fat ($125.23) condition. Differences ($P < 0.01$) in mean selling price existed among all fill categories with gaunt, average, and full heifers selling for $131.50, $125.70, and $127.28, respectively. Heifers that were pre-conditioned ($131.00) had a greater ($P < 0.001$) mean selling price than heifers that were classified as healthy ($125.97) or heifers that appeared sick ($83.62). Lot size also influenced mean selling price. Heifers sold in lot sizes of 10 or more ($132.51) had a greater ($P < 0.01$) mean selling price than heifers sold in smaller ($123.56) lot sizes. Lots that were uniform ($127.19) had a greater ($P < 0.01$) mean selling price than lots that lacked uniformity ($125.67). These date indicate that producers can greatly influence the selling price of their heifers through modification of their management practices such as dehorning, monitoring body condition, and selling heifers in larger, more uniform lots.

Key Words: heifers, livestock auction, selling price

343   Phenotypic characteristics that affect the value of heifers sold in Texas auction barns. M. Beverly, S. Kelley,* K. Stutts, and B. Freel, *Sam Houston State University, Huntsville, TX.*

This study was conducted to evaluate the effect of phenotypic characteristics on selling price of heifers in Texas livestock markets. Data were collected at 9 weekly Texas livestock auctions on 6,855 lots of heifers consisting of 42,376 head. The data were collected by trained livestock market reporters and included subjective identification of age, breed, color, USDA frame and muscle scores, and selling price. An ANOVA was performed. Heifer characteristics were analyzed individually in a model that included BW and location as covariates. Least squares means were generated for each variable and separated based on predicted differences. All selling prices are reported in US dollars per 45.45 kg of BW. The mean selling price of yearling heifers ($128.15) was greater ($P < 0.01$) than the mean selling price of heifer calves ($125.26). Breed type had a significant influence on mean selling price of heifers. Five breed types were analyzed resulting in British ($128.64) breed types having the highest ($P < 0.01$) mean selling price and Continental ($126.38) breed types having the second highest selling prices. American or Brahman-influenced ($118.68) heifers had the lowest ($P < 0.01$) mean selling price. Eleven color categories were analyzed. Gray ($129.39) and black ($129.15) heifers garnered the greatest mean selling prices and were not significantly different from each other. Spotted ($94.57) heifers had the lowest ($P < 0.01$) mean selling price of all color categories. Differences ($P < 0.05$) existed between all frame size categories. Mean selling price for large-, medium-, and small-framed heifers were $130.91, $125.47,

$107.18, respectively. Mean selling price also differed ($P < 0.01$) among all muscle scores. Mean selling price for muscle scores 1, 2, 3, and 4 were $132.07, $118.03, $125.36, and $122.99, respectively. These data indicate that producers can influence the selling price of their heifers through proper age, breed selection, and genetic selection within breeds to meet market demand.

Key Words: heifers, livestock auction, selling price

344   Beef Excellence Education for You: A program to teach youth about the beef industry. L. A. Kriese-Anderson*[1], C. L. Bratcher[1], R. A. Ebert[1], J. B. Elmore[2], R. W. Colquitt[2], and M. K. Stanford[2], *[1]Auburn University, Auburn, AL, [2]Alabama Cooperative Extension System, Auburn, AL.*

Since 2008, over 300 youth from Alabama and Florida have participated in a hands-on, interactive Beef Excellence Education for You (B.E.E.F. U) program. At the program's inception, the goal was to teach youth how their feeder or show cattle fit the US Beef Industry. While the goal remains the same, B.E.E.F. U continues to evolve each year to further enhance participants' knowledge of the US Beef Industry. Targeted youth audiences attending the day-long program include 4-H and FFA members and home-school groups, but any interested youth (ages 8 to 18) is welcome. Participants rotate through multiple sessions focusing on live animals, carcasses and further processing. Sessions include live cattle terminology, beef conformation, feeder calf basics, and fed cattle evaluation as well as beef carcass terminology and carcass evaluation. Further processing stations teach participants how to make kielbasa, steak nuggets and main beef meals. Participants learn which ingredients to use when making the product, where meat cuts are fabricated from the carcass, and how to prepare the product. Other modules have included feeds cattle eat, properly giving injections and taste and texture of variety meats. Modules are taught by Animal Sciences faculty, students and staff and Alabama Cooperative Extension System (ACES) specialists and agents. Participants evaluate B.E.E.F. U using a likert scale at the end of the program. When asked if they would attend another B.E.E.F. U program, 78% said yes, 5% said no and 17% said they were unsure. To date, 60% of participants have attended more than one program. When asked how well they understood the material at each rotation, 74% said they understood the material well or very well, 16% said they understood the material some, while 11% said they did not understand the material or in limited amounts. The majority of participants found the materials interesting or very interesting (82.3%), 11.5% found it somewhat interesting and 6.3% found the material boring or somewhat boring. The majority of the youth stated time spent at each rotation was just right (60%), while 21% indicated the time was too long and 17% stated the time was too short.

Key Words: beef industry, youth education

345   A survey of the presence, structure, and effectiveness of Beef Quality Assurance (BQA) or BQA-type programs across the United States. J. K. Ahola* and R. J. Urie, *Colorado State University, Fort Collins.*

In an effort to improve the effectiveness and impact of Beef Quality Assurance (BQA) Programs in the US, a nationwide survey of state and regional BQA Program coordinators was conducted. In early 2011, coordinators were asked to complete a 37-question on-line survey about the BQA Program that they oversee. Survey questions were intended to summarize basic information about each program, identify unique and successful approaches to educating and(or) certifying producers, and

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estimate the effect of BQA efforts nationwide. Representatives from 45 of the 50 states completed the survey on behalf of their BQA Program or cattle industry, if no program existed. In 62.2% of states, university extension personnel coordinated the BQA Program. State beef councils provided funding for BQA Programs in 60.0% of states, followed by university extension (53.3%), pilot project grants from the National BQA Program (35.6%), and state cattlemen′s associations (31.1%). User fees were used in 22.2% of states. Formal BQA Certification was offered by 91.0% of states, and 71.1% of states required at least 2 h of face-to-face training in order for an attendee to become certified. Only 13.3% of states offered multiple levels of BQA Certification, and just 11.1% included an on-farm assessment or audit associated with BQA Certification. In terms of additional BQA-related components offered, relatively few states offered dairy BQA Certification (20.8%) or feedyard BQA Certification (35.4%). Youth BQA Certification was available in 43.8% of states, but only 27.1% required youth to be BQA Certified to show and sell an animal at the county fair level. On average, there were 28 trainers per state BQA Program. However, most programs (57.1%) had 1 to 9 trainers, while 22.8% had 10 to 49 trainers. At least 50 trainers were present in 20.0% of programs. Overall, 709 trainers were available to BQA Certify producers across the US In summary, these data suggest that the BQA Program includes a large infrastructure of personnel across the US; however, many states offer little beyond basic BQA Certification. Further, the large amount of variation among programs may make development of a uniform nationwide program challenging.

Key Words: Beef Quality Assurance, cattle, survey

346   National Animal Identification System versus National Livestock Identification System. K. Semple[1], M. Robert*[2], and H. Pittman[1], *[1]Department of Primary Industries, Melbourne, Victoria, Australia, [2]The National Agricultural Law Center, Fayetteville, AR.*

On December 19, 2003, a major event happened in the animal agriculture industry. At Vern's Moses Lake Meat Co., a dairy cow infected with bovine spongiform encephalitis (mad cow disease) was slaughtered in the US. Inspired by this event, the USDA secretary Ann Venemen announced a need for a national animal identification system (Roberts, Pittman). Nine years later, in 2012, the US still does not have a national animal identification system in place. However, in other countries such as Canada, New Zealand, the European Union and Australia there are similar programs in place for their livestock production. Dairy farmers around the world are taking advantage of all the benefits that an electronic identification program can provide. Benefits such as accurate identification, automatic sorting, disease traceability, accurate record keeping for animal events such as heat, treatments, sire selection etc

(Semple). This benefit of electronic identification has improved the dairy industry both on and off the farm in other countries. The American dairy industry can easily apply those same benefits, which would lead to an overall support of a similar animal identification program here in the United States.

Key Words: national identification, international benefits, on-farm benefits

347   Development of the pioneer organic beef supply chain in the Mexican tropics—Promotion of sustainable beef production through integration of extension, education and research. P. Fajersson*[1,3] and P. Parada[2], *[1]EcoAgroPec, Hueytamalco, Puebla, Mexico, [2]Carnes La Rumorosa, Poza Rica, Veracruz, Mexico, [3]Colegio de Postgraduados, Campus Veracruz, Veracruz, Mexico.*

In 2001, a strategic alliance was formed in Veracruz between academia, a lead producer and an organic certification agency, collaborating in extension, education and research to integrate the pioneer organic beef supply chain (OBSC) in the Mexican tropics. Twenty producers received guided conversion to organic beef production. Training included 2 theoretical-practical courses, then symposia and workshops including students. Teaching originated with a graduate course on sustainable livestock systems that introduced students to the project. Four generations then visited the lead producer and 2 did their course extension project analyzing his supply chain. Applied research evolved from a case study of the newly integrated OBSC to a detailed financial and energy analysis used to evaluate its feasibility and sustainability during a decade. Continuing education, extension visits and exchange of experiences with other states followed. The lead producer converted his traditional beef cattle production system (TBCPS) to an OBSC certified by Bioagricert, IFOAM in 2003. In 2010, 693 crossbred Zebu cattle grazed 736 ha in agroforestry systems and beef from 150 to 200 head/year were sold to organic markets/stores in 7 states with a 35% value added. The return on investment was 16.6% in the TBCPS and 31.2% in the OBSC and marginal gain was USD 43,912 and 93,339, respectively. Energy efficiency was 49.6% for the OBSC and18.3% for the TBCPS and the OBSC remained profitable in 6 future scenarios. Volume of beef produced is increasing without deterioration of natural resources and energy efficiency and economic stability continue to improve, demonstrating the sustainability of the OBSC. More than 500 producers and faculty and students at 14 universities in Mexico have been trained and projects initiated in 8 states. Education material is disseminated nationally and research results also internationally. Integration of extension, education and research has led to the project's success and expansion.

Key Words: organic beef, sustainability, integrated approach

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