

Extension Education

T60 Management practices used in Alabama beef production I: Impact of herd size. W. F. Owsley*, J. B. Elmore, M. F. Elmore, L. A. Kriese-Anderson, W. C. Rutherford, S. V. Free, and L. S. Saunders, *Auburn University, Auburn, AL.*

In the spring and fall of 2007, producers attending two state-wide producer meetings and 21 of the 27 Alabama livestock markets were asked to participate in a survey to assess the level of management on Alabama beef farms. A total of 699 surveys were completed. Survey responses were entered in spreadsheet format, and sorted by the cow inventory: <10, 10-30, 31-50, 51-100, 101-150, 151-250, >250. Over 90 percent of farms in each category were cow/calf. Of the farms reporting 51-250 cows, 15 percent also stockered calves, compared to 34 percent for over 250 cows. Nineteen percent of the farms with <250 cows expected to receive over 50 percent of their income from cattle, compared to 73 percent of farms over 250 cows. Most farms surveyed (59%) calved year-round or had a split calving season. As herd size increased, the number of farms working calves increased. Vaccinations and deworming were the most observed management practices on calves and cows. The number of farms working cows did not vary with herd size (90 percent). Veterinarians were involved in working cows and were the primary source of herd health information on 40 percent farms surveyed. Notebooks were the primary records storage system for farms regardless of size (40 percent). Only 20 percent of farms used computers for keeping cow and/or calf records. Breeding practices were also similar across all farms surveyed, with 67 percent using natural mating with registered bulls. Farms with large cow herds culled a higher percentage open cows, but culling was similar for other traits. Tailoring Extension programs based on herd size may be helpful for some management skills, but herd size had only limited impact on overall herd management.

Key Words: Beef Quality, Management, Herd Size

T61 Management practices used in Alabama beef production II: Impact of source of herd health information. W. F. Owsley, J. B. Elmore*, M. F. Elmore, L. A. Kriese-Anderson, W. C. Rutherford, S. V. Free, and L. S. Saunders, *Auburn University, Auburn, AL.*

In the spring and fall of 2007, producers attending two state-wide producer meetings and 21 of the state's 27 livestock markets were asked to participate in a survey to assess the level of management on Alabama beef farms. A total of 699 surveys were completed. Participants were asked to identify their primary source of herd health information (SOURCE): veterinarian, feed store, magazine, internet, Extension. Responses were sorted by information source to help develop a targeted Extension education program. Of the producers using their feed store as SOURCE, 70 percent expected cattle to make up less than 25 percent of their income, compared to 48 percent (veterinarian) and 44 percent (Extension). Farms with less than 10 cows used veterinarians and feed stores as SOURCE 45 and 34 percent, respectively. Farms with over 250 cows used veterinarians and feed stores as SOURCE 62 and 0 percent, respectively. Extension was SOURCE evenly across herd size (18 to 22 percent) except for farms with less than 10 cows (9 percent). SOURCE

had little impact on whether calves were worked, but did affect specific management practices. Sixty percent of the farms using veterinarians, magazines and Extension as SOURCE castrated calves, compared to 40 and 30 percent for internet and feed stores, respectively. Farmers using feed stores as SOURCE reported a lower incidence of performing routine management practices on the cow herd, calf and cow records. Farms using Extension as SOURCE reported a higher rate of premises ID. Farms using feed stores as SOURCE were less likely to cull cows on disposition, feet, udders, teeth and eyes, and were less likely to cull open cows. Most farms keeping calf or cow records used a notebook for record storage, except for those using the internet as SOURCE. Over 50 percent of those farms used computers for records. Based on the results of this survey, Extension partnering with information outlets like feed stores and livestock markets could have a significant impact on management practices used in beef production.

Key Words: Cattle, Management, Herd Health

T62 Commercial cow and calf data in Alabama herds: 1988 to 2007. L. A. Kriese-Anderson*¹ and M. F. Elmore², ¹*Auburn University, Auburn, AL,* ²*Alabama Cooperative Extension System, Auburn, AL.*

Since 1988, a PC-based cow/calf production program has been available in Alabama through the Alabama Beef Cattle Improvement Association. From 1988 to 1999, birth and weaning information were the only data entered into the program. From 2000 to present, producers were able to input as much performance data into the program as desired. Each producer must have a minimum of nine pieces of information available on each calf. They include unique sire, dam and calf identification, sire and dam breeds, dam and calf birth date, weaning date and weaning weight. From this minimum amount of data, adjusted weaning weights (WW) and ratios are calculated and provided back to the producer to aid in selection and culling decisions. Since 1988, 288 herds have inputted 110,195 WW from over 35,000 dams. Large herds (n>100 head) contributed the most number of records (n=69,715) followed by medium herds (n= 30 to 99 head; 33,241 WW) and small herds (n<30 head; 7239 WW). Editing WW records to fit within BIF Guidelines for calf age at weighing, records within 4 SD of the mean and sire breeds with more than 100 progeny records, provided 74,148 WW records for analysis using the mixed procedure of SAS. Independent variables included herd, year, herds size and sire breed. Herd was considered a random effect. Effects of year, sire breed and herds size were all significant at P<0.01. WW of calves from small herds were significantly heavier (LSMEANS = 250 kg) than from medium (LSMEANS = 243 kg) or large herds (LSMEANS = 243 kg). There were 22 sire breeds or composites in the dataset. Angus- (n=29,515) and Simmental-sired (n=20,132) calves were the most numerous. Simmental sired calves were significantly heavier than Angus sired calves by 6.91 kg. Charolais sired (n=8,436) calves were intermediate for WW. Using a regression approach, WW increased 1.4 kg/yr in these Alabama herds from 1988 to 2007. Examining dam information, commercial cows averaged 3.7 calves before exiting the herd with an average calving interval of 383.6 days.

Key Words: Beef, Commercial Herds, Adjusted Weaning Weight

T63 A single fleece test method improves premium wool traits in range sheep flock. T. Wuliji¹, T. Borda², H. Glimp¹, L. Gome-Raya¹, and W. Rauw¹, ¹University of Nevada, Reno, ²Borda Ranch, Fernley, NV.

The OFDA2000 is the latest wool technology designed for on-farm testing of greasy fleece in assistance to sheep selection and wool clip preparation. The test provides more than a dozen wool characteristics including mean fiber diameter, fiber length, and fiber variation using a small wool staple sample from mid-side of sheep. The test procedure requires only 45 seconds per sample run and can measure at 80 samples per hour speed. We adopted a single fleece test method at pre shearing for replacement ewe selection and color ear tag identification for extra fine (blue), fine (green), medium (red) and coarse (black) categories. These categories correspond to average fiber diameter ranges of 18 μ and less, 18.1 to 20.1 μ , 20.2 to 22.5 μ , and 22.6 μ and coarser fleece category. Six years of single fleece testing has been carried out on the replacement ewes at the ranch. The shearing classes established at two year old ewes were highly repeatable. A random follow-up test of 100 three year old ewes at 2006 shearing indicated that over 96 % of those stayed within the original fleece test assigned category. The single test fleece characteristics on the Borda Ranch showed that an overall fining ($P < 0.05$) in average micron (Mean \pm SE from 23.9 \pm 0.23 to 22.4 \pm 0.09, 21.6 \pm 0.10, 20.8 \pm 0.12 and 20.9 \pm 0.13 μ ; increasing ($P < 0.05$) fiber length (Mean \pm SE from 56.0 \pm 0.68 to 77.0 \pm 0.41, 79.9 \pm 0.31, 75.3 \pm 0.58 and 86.7 \pm 0.48 mm respectively for test year 2003 to 2008; and improving comfort factor and reducing wool trait variation in the replacement ewes. The flock size was increased from 1660 ewes at 2006 shearing to 2400 ewes at 2008 shearing, and the average fleece weight has gradually increased over the last few years (e.g., 4.51 kg per head in 2006 vs. 4.98 kg per head in 2007). Wool price premium between fine vs. coarse categories were varied from 16% to 49% in those sale seasons. The single fleece test information not only allows producers to class their clips in the price premium categories but also assists in flock selection and culling decisions.

Key Words: Range Sheep, Wool, Fiber Diameter

T64 Minimum sampling requirement for prediction of hay forage quality from monoculture or mixed grass fields. R. S. Milliken¹, M. S. Gadberry², E. B. Kegley^{*3}, J. A. Jennings², and J. T. Richeson³, ¹University of Arkansas Division of Agriculture Cooperative Extension Service, Marshall, ²University of Arkansas Division of Agriculture Cooperative Extension Service, Little Rock, ³University of Arkansas Division of Agriculture, Fayetteville.

Accurate forage quality values are critical when developing a balanced supplemental ration for beef cows. Large (1.2 \times 1.5 m), round hay bales from 2 locations in central Arkansas were individually analyzed for chemical composition (CP, NDF, ADF) to determine the minimum sampling rate required to achieve an accurate forage analysis for either monoculture grass hays or mixed grass hays. The monoculture field consisted of 3.24 ha of Tipton 44 bermudagrass, which was determined through forage inventory by step-point method to be 90% of the stand. A 4.9-ha mixed grass field was also inventoried and was highly variable ($P < 0.0001$) in species composition. Fifty-one bermudagrass and 73 mixed grass large round bales were individually core-sampled 6 times with a 1.9-cm i.d., 46-cm-long Star Multi-Forage Sampler (Star Quality Samplers, Edmonton, AB, Canada). Wet chemistry was used to determine CP,

ADF, and NDF concentrations of each bale. From these factors, percentage TDN was calculated using equations developed and currently used in Arkansas; TDN = 111.8 + 0.95(%CP) - 0.36(%ADF) - 0.7(%NDF) and TDN = 73.5 + 0.62(%CP) - 0.71(%ADF) for bermuda and mixed grass, respectively. For each hay lot, the Survey Select procedure of SAS (SAS Inst. Inc., Cary, NC) was used to generate 10,000 random hay samples for sampling rates ranging from 5 to 75% in increments of 5%. Potential sampling outcomes for each sampling rate were generated, and a baseline for an acceptable degree of error within samples was set at the mean \pm 1 percentage unit for TDN and CP. Results indicate that forage samples should include cores from at least 30% of all bales of a monoculture/pure forage stand and 35% of all bales when sampling a mixed/native grass field to achieve a representative hay sample useful for ration balancing.

Key Words: Sampling Rate, Nutrient Composition, Forage

T65 Demonstration of a formulation approach to include corn-milling co-products in lactating dairy rations. K. J. Machacek* and P. J. Kononoff, University of Nebraska, Lincoln.

In 2007, the U.S. dry milling corn ethanol industry produced approximately 13 million metric tons of feed co-products and the dairy industry continues to be a key market. Based on results reported by a commercial feed laboratory, dried distillers grains plus solubles (DDGS) are low in starch (6.0 \pm 5.4%) but contain high levels of NDF (33.3 \pm 4.8%), CP (30.4 \pm 4.1%), and ether extract (13 \pm 3.0%). Numerous research trials at the University of Nebraska-Lincoln have demonstrated that dairy rations may be formulated to contain as much as 30% DDGS (DM basis) and maintain normal production levels. The objective of this demonstration is to outline a practical ration formulation approach (using CPM-Dairy version 3.0) that seeks to include DDGS at 15 and 30% of the ration DM and maintain normal milk production. Thirty random samples of DDGS originating from one ethanol plant were evaluated for CP, NDF, ADF, acid detergent insoluble crude protein (ADICP), and ether extract (EE). In vitro NDF digestibility (24 and 48 h) was also measured (75.5 and 86.3%, respectively). Three rations were formulated to contain increasing amounts of DDGS (0%, 15%, and 30%) while maintaining a similar intake (20 kg/d), and metabolizable protein (MP) and metabolizable energy (ME) allowable milk (35 kg/d). Forages, corn, and soy-based proteins were replaced as the amount of DDGS increased. Rations had similar concentrations of NDF (35%), increased amounts of CP (18, 18, and 19% for 0, 15, and 30% DDGS, respectively), but were formulated to contain decreasing concentrations of starch (26.1, 21.9, 19.7%). With increasing levels of DDGS, model predicted fermentable NDF increased (12.5, 13.8, and 13.4%), and fermentable starch decreased (21.8, 18.3, and 16.5%). In summary, feed co-products such as DDGS are valuable for inclusion into dairy rations and may be included at 15 and 30% of the ration DM and contribute to supplying adequate levels of MP and ME to support lactation.

Key Words: Co-product, Dairy, Ration Formulation

T66 The Virginia Phosphorus Feeding Incentive Program. C. C. Stallings*, K. F. Knowlton, R. E. James, M. D. Hanigan, B. G. Cox, J. L. Welsh, T. M. Horn, S. M. Puffenbarger, and M. C. Scott, Virginia Polytechnic Institute and State University, Blacksburg.

To reduce the potential for phosphorus (P) runoff into streams a project was undertaken to use feed management as a tool to reduce P excreted by dairy cows. A survey was sent to all Virginia dairy farms (806) asking for information related to nutrient management practices, and assessed potential interest in an incentive-payment project to reduce overfeeding of phosphorus. Interested farms were contacted, visited, and signed to the project. The program provides free feed testing for major nutrients and minerals every two months for three years, ration consultation on request, educational materials and updates via a newsletter, and educational meetings for both producers and nutritionists. In addition a P Report is provided to producers after each set of samples are submitted and analyzed. On this report the amount of P fed was calculated and compared to the requirement for cows in that herd. The P requirement and dry matter intake were calculated according to NRC based on producer-reported body weight, milk production, and fat test. The result is expressed as P consumed as a percent of required. There were 215 herds that signed up for the project. Currently 128 herds have completed enough samplings (5) to have a year end summary prepared calculating eligibility for payment. Nine herds fed P within 5% of required and qualified for the highest year-end payment (\$12/cow), 32 fed P at 105 to 115% of required for a \$6/cow pay rate, 25 fed P at 115 to 125% for a \$3/cow pay rate, and 62 herds fed more than 125% of required P and did not qualify for payment. The remaining 87 herds have not completed their first year or submitted enough samples for a summary. The Virginia P Feeding Incentive Program has engaged producers and their advisors in an ongoing dialogue about herd feeding practices. More than 50% of producers completing sufficient sampling for year 1 evaluation have earned an incentive payment, and average dietary P consumed declined by 2.9% or 2.6 grams/cow/day.

Key Words: Phosphorus, Incentive, Feed Management

T67 Financial performance of dairies in Florida and Georgia in 2006. L. O. Ely^{*1}, A. deVries², R. Giesy², M. Sowerby², B. Broadus², and C. Vann², ¹University of Georgia, Athens, ²University of Florida, Gainesville.

The Dairy Business Analysis Project (DBAP) includes an annual survey of the financial performance of dairies primarily located in Florida and Georgia. Its objective is to document the dairies' financial success using standardized, accrual accounting methods in order to calculate benchmarks and provide feedback on the dairies financial strengths and weaknesses.

Twenty-six dairies submitted financial data in 2006. Twenty-two dairies were included in the summary results. Of these, 16 were located in Florida, and 6 in Georgia. The average herd size was 1,163 cows and 684 heifers with 18599 lbs. milk sold per cow. The average culling rate was 31%. There was an average of 20 FTE workers per farm and 1.01 million lbs milk sold per FTE worker. Total revenue per cwt. was \$19.36 / cwt with \$16.79 / cwt milk income. The average total expense was \$18.56 / cwt. The largest expense items were purchased feed (\$7.17 / cwt), labor (\$3.13 / cwt), livestock (\$1.60 / cwt) and milk marketing (\$1.17 / cwt). Net farm income from operations was \$0.53 / cwt and net farm income was \$0.70 / cwt. The debt to asset ratio was 0.40, the rate of return on assets was 0.03, the rate of return on equity was 0.03, and the operating profit margin ratio was 0.03. Total revenue and expenses decreased with herd size in 2006. Herds with 450-1000 cows had the middle total revenue (\$19.06 / cwt) and expenses (\$17.93 / cwt) which resulted in the highest net farm income (\$0.91/cwt). The herds with the highest milk production (>19,800 lbs / cow / year) had the lowest total

revenue (\$19.16 / cwt) and the lowest expenses (\$17.25/ cwt) resulting in the highest net farm income (\$1.59 / cwt).

Key Words: Dairy, Financial, Management

T68 Organic dairy short course for ag professionals. D. G. Johnson^{*1}, J. M. Moynihan², M. J. Forbord³, and L. Paine⁴, ¹University of Minnesota, Morris, ²Minnesota Department of Agriculture, St. Paul, MN, ³Sustainable Farming Association of Minnesota, Starbuck, MN, ⁴Wisconsin Department of Agriculture, Trade and Consumer Protection, Madison, WI.

“Organic Dairy 101: A workshop for dairy support professionals” targeted providers of advice and service to dairy farms, including: veterinarians and vet students, inspectors, lenders, Extension agents, farm management instructors, consultants, mentor farmers, county feedlot officers, state environmental staff, and advisory teams for dairy planning and development. The 6-hour workshop was held in 4 locations in Minnesota and 3 locations in Wisconsin. Wisconsin workshops targeted veterinarians. The core of programs for Minnesota were planned by a broad-based statewide committee with representatives of the target groups, organic farmers, the Sustainable Farming Association of MN, and agency and education personnel. Local planning committees selected from a menu of speakers and topics, emphasizing local resource people when possible. In Minnesota topics included an overview of National Organic Program organic requirements, farmer insights and virtual farm tours, veterinary practice for organic dairy, economics of organic production, organic crop production, grazing, and dairy nutrition. “If a client asked you questions about the following, how well do you think you could answer?” before (A) and after the workshop (B), (Scale 1 to 5 : 1=Not at all; 5=Like an expert). Responses were tabulated from 47 of 90 participants in the first two workshops. A) What is the Federal Organic rule? A 1.26; B 3.38. B) How do farmers/processors get certified organic? A 1.98; B 3.76. C) Does organic require more than not using antibiotics/synthetics A 2.56; B 4.04. D) Does organic farming “work”? A 2.62; B 4.11. E) What motivates farmers to switch to organic? A 2.36; B 3.87. F) How do organic farmers keep cows healthy? A 1.98; B 3.69. G) What veterinary treatments are allowed for organic cattle? A 1.47; B 3.26. H) What is the market outlook for organic dairy? A 2.00; B 3.74. To the question: “Overall, was this workshop worth the time and effort of attending?”. Yes = 46; No=1. Notable comments: Veterinarians want to learn more about treatments for organic cattle and the evidence behind them; farmer perspectives were valuable;an accredited certifying agency should be included in the program.

Key Words: Organic Dairy, Dairy Professionals, Workshop

T69 Good dairy sanitation workshops in Central American countries. G. Pena^{*1}, M. West¹, D. Orellana², A. Young¹, and D. E. Diaz¹, ¹Utah State University, Logan, ²USDA-FAS, Washington, DC.

During 2007 Utah State University in collaboration with the USDA-Foreign Agricultural Service conducted four 3-day workshops on good dairy sanitary practices in Guatemala, El Salvador, Honduras and Nicaragua. These workshops were conducted to support the efforts of the Dominican Republic-Central America Free Trade Agreement. Training workshops include two days of classroom lecture plus a one day hands

on farm visit. Topics covered during these workshops included milking techniques, mastitis; milk quality from the farm to your table; heat stress; vaccination protocols and residues in milk and milk handling, storage and transport. Over 400 participants attended the workshops which included among the participants dairy producers, farm employees, government personnel, and milk cooperatives. A pre and post test of 20 questions was given to all participants utilizing the I-clicker testing equipment and software (Macmillian, New York, US), which ensured anonymity while allowing comparisons between individual pre and post test results. Questions were read and explained to all participants. Data was analyzed utilizing a paired sample t-test to determine workshop impact. Participants at all workshops showed a 29.1% improvement in their post test results ($P < 0.001$). Because of the increase in consumption of imported dairy products from participating countries programs such as this will help improve the quality of the dairy products that enter the United States.

Key Words: Milking Techniques, Workshops, Dairy Sanitation

T70 Spanish language training on proper milking techniques in the state of Utah. D. E. Diaz*, G. Pena, C. Israelson, J. Barnhill, and A. Young, *Utah State University, Logan.*

A series of workshops were conducted on proper milking techniques in the state of Utah for Spanish speaking dairy farm employees. The role

of extension in training this important sector of the dairy industry has been growing in the last decade. The language and cultural barrier make for an often undertrained workforce. The Dairy Extension group at Utah State University offers a series of workshops with hands on demonstration to Spanish speaking employees in our area. The objective of these workshops is to teach proper milking procedures to milkers in their native language to improve their understanding and comprehension of the material. Pre and post tests are conducted to measure impact of the program. These groups are better served in small group workshops with hand on demonstrations that emphasize both technical information and practical skills. A series of 5 workshops were conducted in 2007 in three counties in the state of Utah. Pre and post tests, which consisted of ten questions, were given to all participants utilizing the I-clicker testing equipment and software (Macmillian New York, US) which ensured anonymity while allowing comparisons between individual pre and post tests results. Questions were read and explained to all participants. Data were analyzed utilizing a paired sample t-test to determine workshop impact. Participants at all workshops showed a 31.5% improvement in their post tests results ($P < 0.001$). Spanish language training for Spanish speaking milkers should lead to improved milker knowledge, which in turn should lead to improved milking procedures, lower somatic cells counts and lower incidence of mastitis. This in turn should lead to better productivity of dairy operations and higher quality milk.

Key Words: Spanish Language Training, Workshop, Extension Education