

D. H. “Denny” Crews, Jr., PhD

Professor, Livestock Genetics

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1. Personal Information

Home: 101-2514 Owens Avenue
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Date of Birth: November 16, 1967



2. Graduate Degrees

Ph.D. Animal Breeding and Genetics, Louisiana State University, Baton Rouge, December, 1996.
Advisor: D. E. Franke. Dissertation title: “Genetic components of (co)variance for postweaning growth, carcass composition and meat quality traits among Brahman-influenced beef steers.”

M.S. Beef Cattle Science, University of Florida, Gainesville, August, 1992. Advisor: D. D. Hargrove.
Thesis title: “Feedlot performance and carcass characteristics of crossbred steers sired by Brahman, composite, and Simmental bulls and fed as calves and as yearlings.”

3. Work Experience

08/08 – Present: Professor, Livestock Genetics, Department of Animal Sciences, Colorado State University (CSU) and Co-Director, CSU Center for Genetic Evaluation of Livestock (CGEL)

04/08 – 08/08: Senior Research Scientist (SE-RES-4), Beef Quantitative Genomics, Agriculture and Agri-Food Canada (AAFC) Lethbridge Research Centre (LRC)

07/06 – 08/08: University of Alberta AAFC Chair Professor, Beef Quantitative Genomics

04/04 – 08/08: AAFC National Study Leader, Livestock Genetics and Genomics

04/04 – 04/08: Research Scientist (SE-RES-3), Beef Quantitative Genomics, AAFC – LRC

04/00 – 04/04: Research Scientist (SE-RES-2), Beef Quantitative Genomics, AAFC – LRC

05/98 – 04/00: Research Scientist (SE-RES-1), Beef Quantitative Genomics, AAFC – LRC

01/97 – 05/98: Post-doctoral Research Fellow, AAFC – LRC

4. Adjunct and Affiliate Academic Appointments

07/06 – Present: Department of Agricultural, Food and Nutritional Sciences, University of Alberta, Edmonton, Alberta, Canada

11/07 – Present: School of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Ireland

05/98 – 08/08: Department of Biology (Agricultural Biotechnology), University of Lethbridge, Lethbridge, Alberta, Canada

5. Current Position and Assignment

(60 % Research, 25 % Resident Instruction & Advising, 15 % Outreach & Service)

Professor of Beef Cattle Breeding and Genetics is a full time, tenure track faculty position in the Department of Animal Sciences and has the responsibility to lead a research program closely aligned with the efforts of the Colorado State University Center for Genetic Evaluation of Livestock (CGEL) and the National Beef Cattle Evaluation Consortium (NBCEC). The incumbent utilizes CSU experimental beef herds and other resources to conduct both discovery and demonstration research in support of the breeding and genetics program goals, and works closely with international beef breed associations to develop and implement national cattle evaluation systems for economically relevant traits through co-supervision of CGEL. Funding support and successful communication of research results are required. Effective communication and consultation with livestock producers is essential. The main research areas include livestock quantitative genetics, national cattle evaluation, and use of genomic tools in large scale genetic prediction. The position also requires the recruitment and supervision of both M.S. and Ph.D. students in the animal breeding and genetics and related areas. Teaching responsibilities include graduate level courses in computational biology, genetic prediction, and equine genetic principles, with co-supervisory responsibility for the graduate breeding and genetics seminar.

6. Publications

6.1 Refereed Journal Articles

Criterion	Submitted	Accepted/In Press	In Print	Total
Sole Author	0	0	5	5
First Author	0	0	16	16
Contributing Author	1	0	39	40
Total	1	0	60	61

Welch, C.M., J.K. Ahola, J.B. Hall, G.K. Murdoch, **D.H. Crews, Jr.**, L.C. Davis, M.E. Doumit, W.J. Price, L.D. Keenan, and R. A. Hill. 2012. *Journal of Animal Science* 90:5107-5117.

Mujibi, F.D.N., J. D. Nkrumah, O. N. Durunna, J.R. Grant, J. Mah, Z. Wang, J. Basarab, G. Plastow, **D. H. Crews, Jr.**, and S. S. Moore. 2011. Associations of marker panel scores with feed intake and efficiency traits in beef cattle using pre-selected single nucleotide polymorphisms. 2011. *Journal of Animal Science* 89:3362-3371.

Crowley, J.J., R. D. Evans, N. McHugh, D. A. Kenny, M. McGee, **D.H. Crews, Jr.**, and D.P. Beery. 2011. Genetic relationships between feed efficiency in growing males and beef cow performance. *Journal of Animal Science* 89:3372-3381.

Crowley, J. J., R. D. Evans, M. McHugh, T. Pabiou, D. A. Kenny, M. McGee, **D.H. Crews, Jr.**, and D. P. Berry. 2011. Genetic associations between feed efficiency measured in a performance test station and performance of growing cattle in commercial beef herds. *Journal of Animal Science* 89:3382-3393.

- Mujibi, F.D.N., J. D. Nkrumah, O.N. Durunna, P. Stothard, J. Mah, Z. Wang, J. A. Bararab, G. Plastow, **D. H. Crews, Jr.**, and S.S. Moore. 2011. Accuracy of genomic breeding values for residual feed intake in crossbred beef cattle. *Journal of Animal Science* 89:3353-3361.
- Lawrence, P., D. A. Kenny, B. Earley, **D. H. Crews, Jr.**, and M. McGee. 2011. Grass silage intake, rumen and blood variables, ultrasonic and body measurements, feeding behavior, and activity in pregnant beef heifers differing in phenotypic residual feed intake. *Journal of Animal Science* 89:3248-3261.
- Schwartzkopf-Genswein, K.S., D. D. Hickman, M. A. Shah, C. R. Krehbiel, B.M.A. Genswein, R. Silasi, D. G. Gibb, **D. H. Crews, Jr.** and T. A. McAllister. 2011. Relationship between feeding behavior and performance of feedlot steers fed barley-based diets. *Journal of Animal Science* 89:1180-1192.
- C. M. McAllister, S. E. Speidel, **D. H. Crews Jr.**, and R. M. Enns. 2011. Genetic parameters for intramuscular fat percentage, marbling score, scrotal circumference, and heifer pregnancy in Red Angus cattle. *Journal of Animal Science* 89:2068-2072.
- Kelly, A. K., M. McGee, **D. H. Crews, Jr.**, C. O. Lynch, A. R. Wylie, R. D. Evans, and D. A. Kenny. 2010. Relationship between body measurements, metabolic hormones, metabolites and residual feed intake in performance tested pedigree beef bulls. *Livestock Science* 135:8-16.
- Kelly, A. K., M. McGee, **D. H. Crews, Jr.**, T. Sweeney, T. M. Boland, and D. A. Kenny. 2010. Repeatability of feed efficiency, carcass ultrasound, feeding behavior, and blood metabolic variables in finishing heifers divergently selected for residual feed intake. *Journal of Animal Science* 88:3214-3225.
- Speidel, S. E., R. M. Enns, and **D. H. Crews, Jr.** 2010. Genetic analysis of longitudinal data in beef cattle: A review. *Genetics and Molecular Research* 9(1):19-33.
- Crowley, J. J., M. McGee, D. A. Kenny, **D. H. Crews, Jr.**, R. D. Evans, and D. P. Berry. 2010. Phenotypic and genetic parameters for different measures of feed efficiency in different breeds of Irish performance-tested beef bulls. *Journal of Animal Science* 88:885-894.
- Kelly, A. K., M. McGee, **D. H. Crews, Jr.**, A. G. Fahey, A. R. Wylie, and D. A. Kenny. 2010. Effect of divergence in residual feed intake on feeding behavior, blood metabolic variables, and body composition traits in growing beef heifers. *Journal of Animal Science* 88:109-123.
- Lancaster, P. A., G. E. Carstens, **D. H. Crews, Jr.**, T. H. Welsh, Jr., T. D. A. Forbes, D. W. Forrest, L. O. Tedeschi, R. D. Randel, and F. M. Roquette. 2009. Phenotypic and genetic relationships of residual feed intake with performance and ultrasound carcass traits in Brangus heifers. *Journal of Animal Science* 87:3887-3896.
- Islam, K. K., M. Vinsky, R. E. Crews, E. Okine, S. S. Moore, **D. H. Crews, Jr.**, and C. Li. 2009. Association analyses of a SNP in the promoter of *IGF-1* with fat deposition and carcass merit traits in hybrid, Angus, and Charolais beef cattle. *Animal Genetics* 40(5):766-769.
- Mujibi, F. D. N. and **D. H. Crews, Jr.** 2009. Genetic parameters for calving ease, gestation length and birth weight in Charolais cattle. *Journal of Animal Science* 87:2759-2766.
- Aldai, N., M. E. R. Dugan, K. Osoro, Z. Wang, **D. H. Crews, Jr.**, and C. Li. 2009. Phenotypic correlations of fatty acid composition among intramuscular, subcutaneous and intermuscular fat tissues in concentrate-fed beef cattle of differing genotypes. *Canadian Journal of Animal Science* 89:67-70.
- Lancaster, P. A., G. E. Carstens, F. R. B. Ribeiro, L. O. Tedeschi, and **D. H. Crews, Jr.** 2009. Characterization of feed efficiency traits and relationships with feeding behavior and ultrasound carcass traits in growing bulls. *Journal of Animal Science* 87:1528-1539.
- Crews, D. H., Jr.** and R. M. Enns. 2008. Models for genetic evaluation of scrotal circumference in Red Angus. *Professional Animal Scientist* 24:128-135.
- Crews, D. H., Jr.**, R. M. Enns, J. M. Rumph, and E. J. Pollak. 2008. Genetic evaluation of retail product percentage in Simmental cattle. *Journal of Animal Breeding and Genetics* 125:13-19.
- McKay, S. D., R. D. Schnabel, B. M. Murdoch, L. K. Matakumalli, J. Aerts, W. Coppieters, **D. H. Crews, Jr.**, E. D. Nato, C. A. Gill, C. Gao, H. Mannen, Z. Wang, C. P. Van Tassell, J. L. Williams, J. F. Taylor,

- and S. S. Moore. 2007. An assessment of population structure of eight breeds of cattle using a whole genome SNP panel. *BMC Genetics* 8:74-104.
- Nkrumah, J. D., E. L. Sherman, C. Li, E. Marques, **D. H. Crews, Jr.**, R. Bartusiak, B. Murdoch, Z. Wang, J. A. Basarab, and S. S. Moore. 2007. Primary genome scan to identify putative QTL for feedlot growth rate, feed intake, and feed efficiency of beef cattle. *Journal of Animal Science* 85:3170-3181.
- Nkrumah, J. D., D. H. Keisler, **D. H. Crews, Jr.**, J. A. Basarab, Z. Wang, C. Li, M. A. Price, E. K. Okine, and S. S. Moore. 2007. Genetic and phenotypic relationships of serum leptin concentrations with performance, feed efficiency, and carcass merit of beef cattle. *Journal of Animal Science* 85:2147-2155.
- Crews, D. H., Jr.** and Z. Wang. 2007. Illustration of the maternal animal model used for genetic evaluation of beef cattle. *Journal of Animal Science* 85:1842-1848.
- Nkrumah, J. D., **D. H. Crews, Jr.**, J. A. Basarab, M. A. Price, E. K. Okine, Z. Wang, C. Li, and S. S. Moore. 2007. Genetic and phenotypic relationships of feeding behavior and temperament with performance, feed efficiency, ultrasound, and carcass merit of beef cattle. *Journal of Animal Science* 85:2382-2390.
- Nkrumah, J. D., J. A. Basarab, Z. Wang, C. Li, M. A. Price, E. K. Okine, **D. H. Crews, Jr.**, and S. S. Moore. 2007. Genetic and phenotypic relationships of feed intake and different measures of feed efficiency with growth and carcass merit of beef cattle. *Journal of Animal Science* 85:2711-2720.
- Rumph, J. M., W. R. Schafer, **D. H. Crews, Jr.**, R. M. Enns, R. J. Lipsey, R. L. Quaas, and E. J. Pollak. 2007. Genetic evaluation of beef carcass data using different end point adjustments. *Journal of Animal Science* 85:1120-1125.
- Moore, S. S., **D. H. Crews, Jr.**, and J. D. Nkrumah. 2006. Multiple and candidate gene approaches to genetic evaluation of feed efficiency in beef cattle. *8th World Congress on Genetics Applied to Livestock Production CD-ROM 03-06*.
- Li, C., J. D. Nkrumah, R. Bartusiak, A. Fu, B. Murdoch, E. L. Sherman, S. D. McKay, Z. Wang, **D. H. Crews, Jr.**, and S. S. Moore. 2006. A genome-wide scan for quantitative trait loci affecting ultrasound and carcass backfat thickness in beef cattle. *8th World Congress on Genetics Applied to Livestock Production CD-ROM 03-53*.
- Brito, L. F. C., A. D. Barth, N. C. Rawlings, R. E. Wilde, **D. H. Crews, Jr.**, P. S. Mir, and J. P. Kastelic. 2007. Effect of nutrition during calthood and peripubertal period on serum metabolic hormones, gonadotropins, and testosterone concentrations, and on sexual development in bulls. *Domestic Animal Endocrinology* 33:1-18.
- Brito, L. F. C., A. D. Barth, N. C. Rawlings, R. E. Wilde, **D. H. Crews, Jr.**, P. S. Mir, and J. P. Kastelic. 2007. Effect of improved nutrition during calthood on serum metabolic hormones, gonadotropins and testosterone concentrations, and on testicular development in bulls. *Domestic Animal Endocrinology* 33:460-469.
- Brito, L. F. C., A. D. Barth, N. C. Rawlings, R. E. Wilde, **D. H. Crews, Jr.**, P. S. Mir, and J. P. Kastelic. 2007. Circulating metabolic hormones during the peripubertal period and their association with testicular development in bulls. *Reproduction in Domestic Animals* 42:502-508.
- Wang, Z., J. D. Nkrumah, C. Li, J. A. Basarab, L. A. Goonewardene, E. K. Okine, **D. H. Crews, Jr.**, and S. S. Moore. 2006. Test duration for growth, feed intake, and feed efficiency in beef cattle using the GrowSafe™ System. *Journal of Animal Science* 84:2289-2298.
- Bergen, R. D., S. P. Miller, J. W. Wilton, **D. H. Crews, Jr.**, and I. B. Mandell. 2006. Genetic correlations between live yearling bull and steer carcass traits adjusted to different harvest end points. 1. Carcass lean percentage. *Journal of Animal Science* 84:546-577.
- Crews, D. H., Jr.**, G. E. Carstens, and P. A. Lancaster. 2006. Case Study: A multiple trait selection index including feed efficiency. *Professional Animal Scientist* 22:65-70.
- Crews, D. H., Jr.** 2006. Age of dam and sex of calf adjustments and genetic parameters for gestation length in Charolais cattle. *Journal of Animal Science* 84:25-31.

- Wang, Z., J. A. Basarab, L. A. Goonewardene, **D. H. Crews, Jr.**, P. Ramsey, K. L. Lyle, N. French, E. K. Okine, and S. S. Moore. 2005. Test duration for residual feed intake in commercial bulls. *Journal of Animal and Veterinary Advances* 4:825-830.
- Shah, M., M. Syed, M. Amjed, N. Shah, and **D. H. Crews, Jr.** 2005. Genetic and phenotypic parameters for some reproductive traits of Holstein-Friesian cattle in Pakistan. *Sarhad Journal of Agriculture* 21:515-520.
- Crews, D. H., Jr.** 2005. Genetics of efficient feed utilization and national cattle evaluation: A review. *Genetics and Molecular Research* 4:152-165.
- Valle, E., S. S. Moore, **D. H. Crews, Jr.**, and B. F. Benkel. 2004. The bovine cocaine and amphetamine transcript (CART) locus: gene characterization and SNP discovery. *Animal Genetics* 36:74-75.
- Valle, E., F. A. Haberman, S. S. Moore, **D. H. Crews, Jr.**, and B. F. Benkel. 2004. Genome localization and SNP discovery in the bovine melanocortin receptor 4 (MCR4) gene. *Animal Genetics* 35:351-352.
- Crews, D. H., Jr.**, M. Lowerison, N. Caron, and R. A. Kemp. 2004. Genetic parameters among growth and carcass traits of Canadian Charolais cattle. *Canadian Journal of Animal Science* 84:589-597.
- Crews, D. H., Jr.**, E. J. Pollak, and R. L. Quaas. 2004. Evaluation of Simmental carcass EPD estimated using live and carcass data. *Journal of Animal Science* 82:661-667.
- Walburger, A. M. and **D. H. Crews, Jr.** 2004. Improving market selection for fed beef cattle: The value of real time ultrasound (RTU) and relations' data. *Canadian Journal of Agricultural Economics* 51:1-16.
- Bergen, R. D., **D. H. Crews, Jr.**, S. P. Miller, and J. J. McKinnon. 2003. Predicting lean meat yield in beef cattle using ultrasonic muscle depth and width measurements. *Canadian Journal of Animal Science* 83:429-434.
- Crews, D. H., Jr.** and D. J. Porteous. 2003. Age of dam and age at measurement adjustments and genetic parameters for scrotal circumference of Canadian Hereford bulls. *Canadian Journal of Animal Science* 83:183-188.
- Schwartzkopf-Genswein, K. S., K. A. Beauchemin, D. J. Gibb, **D. H. Crews, Jr.**, D. D. Hickman, M. Streeter, and T. A. McAllister. 2003. Effect of bunk management on feeding behavior, ruminal acidosis, and performance of feedlot cattle: A review. *Journal of Animal Science (E Supplement 2):E149-E158.*
- Crews, D. H., Jr.**, E. J. Pollak, R. I. Weaver, R. L. Quaas, and R. J. Lipsey. 2003. Genetic parameters for carcass traits and their live animal indicators in Simmental cattle. *Journal of Animal Science* 81:1427-1433.
- Crews, D. H., Jr.** 2003. A repeatability model for Warner-Bratzler shear force in beef cattle. *Professional Animal Scientist* 19:44-46.
- Crews, D. H., Jr.** 2002. The relationship between beef sire carcass EPD and progeny phenotype. *Canadian Journal of Animal Science* 82:503-506.
- Mwansa, P. B., **D. H. Crews, Jr.**, J. W. Wilton, and R. A. Kemp. 2002. Multiple trait selection for maternal productivity in beef cattle. *Journal of Animal Breeding and Genetics* 119:391-399.
- Crews, D. H., Jr.**, N. H. Shannon, R. E. Crews, and R. A. Kemp. 2002. Weaning, yearling, and preharvest ultrasound measures of fat and muscle area in steers, bulls, and heifers. *Journal of Animal Science* 80:2817-2824.
- Crews, D. H., Jr.** and S. Cormican. 2002. Software for calculation of the inverse numerator relationship matrix. *Professional Animal Scientist* 18:147-150.
- Crews, D. H., Jr.** and R. A. Kemp. 2002. Genetic evaluation of carcass yield using ultrasound measures on young replacement beef cattle. *Journal of Animal Science* 80:1809-1818.
- Crews, D. H., Jr.** 2001. Alternative ultrasound predictors of beef carcass longissimus muscle area. *Professional Animal Scientist* 17:303-308.

- Crews, D. H., Jr.** and R. A. Kemp. 2001. Genetic parameters for ultrasound and carcass measures of yield and quality among replacement and slaughter beef cattle. *Journal of Animal Science* 79:3008-3020.
- Mwansa, P. B., R. A. Kemp, **D. H. Crews, Jr.**, J. P. Kastelic, D. R. C. Bailey, and G. H. Coulter. 2000. Selection for cow lifetime pregnancy rate using bull and heifer growth and reproductive traits in composite cattle. *Canadian Journal of Animal Science* 80:507-510.
- Charagu, P. K., **D. H. Crews, Jr.**, R. A. Kemp, and P. B. Mwansa 2000. Machine effects on accuracy of ultrasonic prediction of back fat and ribeye area in beef bulls, steers, and heifers. *Canadian Journal of Animal Science* 80:19-24.
- Mwansa, P. B., R. A. Kemp, **D. H. Crews, Jr.**, J. P. Kastelic, D. R. C. Bailey, and G. H. Coulter. 2000. Comparison of models for genetic evaluation of scrotal circumference in crossbred bulls. *Journal of Animal Science* 78:275-282.
- Crews, D. H., Jr.** and R. A. Kemp. 1999. Contributions of postweaning growth information and maternal effects for prediction of carcass trait breeding values among crossbred beef cattle. *Canadian Journal of Animal Science* 79:17-25.
- Crews, D. H., Jr.** and R. A. Kemp. 1998. Maternal (co)variance components for carcass trait breeding values among crossbred beef cattle. *6th World Congress on Genetics Applied to Livestock Production* 23:177-179.
- Crews, D. H., Jr.** and D. E. Franke. 1998. Heterogeneity of variance for carcass traits by percentage Brahman inheritance. *Journal of Animal Science* 76:1803-1809.

6.1.1 Refereed Publications Submitted for Review

- Diaz, I.D.P.S., **D. H. Crews, Jr.** and R.M. Enns. 2012. Cluster and meta-analyses of genetic parameters for feed intake traits in beef cattle. *Journal of Animal Breeding and Genetics (Submitted)*.

6.2 Refereed Books and Book Chapters

- Crews, D.H., Jr.** and G.E. Carstens, 2012. Chapter 2: Measuring Individual Feed Intake and Utilization in Growing Cattle. In: *Feed Efficiency in the Beef Industry*. R. A. Hill, Editor. Wiley-Blackwell, ISBN 978-0-470-95952-7.
- Crews, D. H., Jr.**, M. E. Dikeman, S. L. Northcutt, D. J. Garrick, T.T. Marston, M. D. MacNeil, L. W. Olson, J. C. Paschal, G. Rouse, R. L. Weaber, T. Wheeler, S. D. Shackelford, R. E. Williams, and D. E. Wilson. 2010. Animal Evaluation. In: *Guidelines for Uniform Beef Improvement Programs, 9th Edition*. Beef Improvement Federation (www.beefimprovement.org).
- Crews, D. H., Jr.** 2005. Course Notes (AFNS500) Advanced Genetic Prediction, 1st Edition. AAFC – LRC and the University of Alberta, Edmonton, Alberta.
- Crews, D. H., Jr.** 2005. Course Notes (BIOL3850) Genetics of Livestock Improvement, 5th Edition. AAFC – LRC and the University of Lethbridge, Lethbridge, Alberta.
- Dolezal, S. L., **D. H. Crews, Jr.**, M. E. Dikeman, T. W. Marston, L. W. Olson, J. C. Paschal, G. H. Rouse, R. L. Weaber, R. E. Williams, and D. E. Wilson. 1992. Animal Evaluation. In: *Guidelines for Uniform Beef Improvement Programs, 8th Edition*. Beef Improvement Federation (www.beefimprovement.org).
- Crews, D. H., Jr.** 2001. Genetic Evaluation and Improvement of Economic Merit Using EPD. In: *Advances in Beef Cattle Science, Volume 1*. pp. 197-214, Agriculture and Agri-Food Canada.

6.3 Refereed Proceedings/Invited Abstract Presentations

- Welch, C.M., J.K. Ahola, G.K. Murdoch, **D.H. Crews, Jr.**, J.I. Szasz, L.C. Davis, M.E. Doumit, W.J. Price, L.D. Keenan, and R.A. Hill . 2012. Performance, residual feed intake, and carcass quality of

- progeny from Red Angus sires divergent for maintenance energy EPD. *Journal of Animal Science* 90 (Suppl. 3) Abstr. 700.
- Diaz, I.D.P.S., **D.H. Crews, Jr.**, and R.M. Enns. 2012. Cluster and meta-analyses of genetic parameter estimates for feed intake traits in beef cattle. *Journal of Animal Science* 90 (Suppl. 3) Abstr. 464.
- Zeng, X., Brigham, B.W., **D.H. Crews, Jr.**, and R.M. Enns. 2012. Cumulative discounted gene expression for terminal and maternal cattle production systems. *Journal of Animal Science* 90 (Suppl. 3) Abstr. 463.
- Moreno, J.G., G.E. Carstens, **D.H. Crews, Jr.**, L.O. Tedeschi, L.R. McDonald, and S. Williams. 2012. Evaluation of feed efficiency and feed behavior traits in performance tested beef bulls. *Journal of Animal Science* 90 (Suppl. 3) Abstr. 407.
- Crews, D. H., Jr. 2010. Phenomics: Development of Practical Selection Tools Using Genomics. *Proceedings, VII Simcorte International Symposium on Beef Cattle Production. Universidade Federale Viçosa, MG, Brazil (Invited)*.
- Crews, D. H., Jr. 2010. Genetics of Intake and Efficient Feed Utilization in Cattle. *Proceedings, 2010 Colorado Nutrition Roundtable, March 25, 2010, Fort Collins, CO. pp. 4-10 (Invited)*.
- McAllister, C. M., S. E. Speidel, B. W. Brigham, **D. H. Crews, Jr.**, and R. M. Enns. 2009. Genetic parameters for percent intramuscular fat, marbling score, scrotal circumference, and heifer pregnancy in Red Angus Cattle. *Proceedings, Western Section, American Society of Animal Science* 60:152-155.
- Pendley, C. T., C. M. McAllister, S. E. Speidel, **D. H. Crews, Jr.**, J. D. Tatum, and R. M. Enns. 2009. Relationships between calving ease EPD and progeny carcass performance. *Proceedings, Western Section, American Society of Animal Science* 60:31-33.
- Pepper, A. R., R. M. Enns, R. I. Weaber, H. Van Campen, G. H. Loneragan, J. L. Salak-Johnson, C. C. L. Chase, R. K. Peel, J. J. Wagner, **D. H. Crews, Jr.**, and E. J. Pollak. 2009. Relationships of exit velocity and average chute score with carcass traits in feedlot steers. *Proceedings, Western Section, American Society of Animal Science* 60:34-37.
- Lawrence, P., M. McGee, D. A. Kenny, **D. H. Crews, Jr.**, and B. Earley. 2009. Grass silage intake, rumen and blood variables, ultrasound and body measurements and behavior in pregnant beef heifers differing in phenotypic residual feed intake. 2009 Agricultural Research Forum, Tullamore, Co. Offaly, Ireland.
- Crews, D. H., Jr.** 2008. Genetics of feed intake and efficiency in cattle. *Proceedings, 9th Genetic Prediction Workshop, Kansas City, MO. pp. 11-20*.
- Crews, D. H., Jr.** and R. M. Enns. 2008. Genetic improvement of heifer pregnancy and performance in beef cattle. *Proceedings, Robert E. Taylor Memorial Symposium (2008): Applied Reproductive Strategies in Beef Cattle, Fort Collins, CO. pp 187-194*.
- Crews, D. H., Jr.** 2008. Genetics of efficient feed utilization in cattle. *Proceedings, 43rd Annual Pacific Northwest Animal Nutrition Conference, Tacoma, WA. pp. 177-184*.
- Enns, R. M. and **D. H. Crews, Jr.** 2008. New trait development and economic relevance in national cattle evaluation. *Proceedings, 40th Beef Improvement Federation Research Symposium and Annual Meeting, Calgary, AB. pp. 40-43*.
- Crews, D. H., Jr.**, S. S. Moore, and R. M. Enns. 2008. Optimizing traditional and marker assisted evaluation in beef cattle. *Proceedings, 40th Beef Improvement Federation Research Symposium and Annual Meeting, Calgary, AB. pp. 44-49*.
- Rumph, J. M., W. R. Schafer, **D. H. Crews, Jr.**, R. M. Enns, R. J. Lipsey, R. L. Quaas, and E. J. Pollak. 2007. Genetic evaluation of beef carcass data using different end point adjustments. *Proceedings, 39th Beef Improvement Federation Research Symposium and Annual Meeting, Fort Collins, CO. pp. 69-73*.
- Crews, D. H., Jr.**, R. M. Enns, J. M. Rumph, E. J. Pollak, and R. L. Quaas. 2006. Genetic correlations of component carcass traits with retail product percentage in Simmental cattle. *Proceedings, Western Section, American Society of Animal Science* 57:75-78.

- Crews, D. H., Jr.** 2006. The genetics of feed efficiency in beef cattle. *Proceedings, 38th Beef Improvement Federation Research Symposium and Annual Meeting, Choctaw, MS.* pp. 22-31.
- Franke, D. E., S. M. DeRouen, A. R. Williams, **D. H. Crews, Jr.**, and W. E. Wyatt. 2005. Breed direct and maternal additive and heterosis genetic effects for reproductive, growth, and carcass traits. *Proceedings, "Tropically Adapted Breeds – Regional Project S-1013" Louisiana State University Agricultural Center.* pp. 221-227.
- Crews, D. H., Jr.** 2005. Multiple trait selection for maternal productivity: The Hereford maternal productivity index. *Proceedings, 37th Beef Improvement Federation Research Symposium and Annual Meeting, Billings, MT.* pp. 88-95.
- Lancaster, P. A., G. E. Carstens, **D. H. Crews, Jr.** and S. A. Woods. 2005. Evaluation of feed efficiency traits in growing bulls and relationships with feeding behavior and ultrasound carcass estimates. *Proceedings, Western Section, American Society of Animal Science* 56:461-464.
- Crews, D. H., Jr.**, G. E. Carstens, and P. A. Lancaster. 2005. Development of a multiple trait selection index for feedlot traits in beef cattle including feed efficiency. *Proceedings, Western Section, American Society of Animal Science* 56:71-74.
- Crews, D. H., Jr.** 2004. Genetic evaluation of efficient feed utilization in beef cattle. *Journal of Animal Science* 82 (Supplement 1):119 (Invited Abstract).
- Crews, D. H., Jr.**, J. D. Nkrumah, J. Yu, and S. S. Moore. 2004. Associations of single nucleotide polymorphisms in the bovine leptin gene with feedlot and carcass traits of crossbred steers. *Proceedings, Canadian Society of Animal Science Annual Meeting, Edmonton, AB.* p. 161.
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- Crews, D. H., Jr.**, N. H. Shannon, B. M. A. Genswein, R. E. Crews, C. M. Johnson, and B. A. Kendrick. 2003. Genetic parameters for net feed efficiency of beef cattle measured during postweaning growing versus finishing periods. *Proceedings, Western Section, American Society of Animal Science* 54:125-128.
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- Kemp, R. A., **D. H. Crews, Jr.**, and N. Caron. 1998. Current research on genetic evaluation of carcass traits. *Proceedings, 30th Beef Improvement Federation Research Symposium and Annual Meetings, Calgary, AB.* pp. 190-195.
- Crews, D. H., Jr.** 1996. Targets for beef cattle improvement: Selection for carcass merit. *Proceedings, 28th Beef Improvement Federation Research Symposium and Annual Meeting, Birmingham, AL.* pp. 195-211. (Frank Baker Memorial Scholarship Award).
- Crews, D. H., Jr.** 1995. Improvement of carcass merit in cattle with Brahman breeding. *Proceedings, 27th Beef Improvement Federation Research Symposium and Annual Meeting, Sheridan, WY.* pp. 286-300. (Frank Baker Memorial Scholarship Award).

6.4 Software Suite

Crews, D. H., Jr. and A. Watson. 2008. The Animal Breeder’s Tool Kit: ABTK3.2. An update and re-release of the Animal Breeder’s Tool Kit [with documentation and User’s Guide]. AAFC and Colorado State University.

6.5 Software Tools

Name	Platform	Release	Description/Function	Language
GETAGE	Linux/Win32-64	ABTK4.0	Compute ages and BIF AOD	Python
DAYD	Linux/Win32-64	ABTK4.0	Compute age differences	Python
ITR	Linux/Win32-64	0.9(2008)	Single trait VCE with Method R	C / BASH
SST	Linux/Win32-64	ABTK3.2	Vector summary statistics	Python
SIM	Linux/Win32-64	ABTK3.2	3-trait random-normal simulator	Python
JDATE	Linux	ABTK3.2	Serial date converter	C
GSTAT	Linux/CygWin	ABTK3.2	Group summary statistics	C
RENUM	Linux	ABTK3.2	Reorder large pedigrees	BASH
SAMU	Linux/CygWin	ABTK3.2	Simple animal model solver	BASH [ABTK]
SAM	Linux/CygWin	ABTK3.2	Maternal animal model solver	BASH [ABTK]
SCALE	Linux	ABTK3.2	Normal & z-score transforms	BASH [ABTK]
2FS	Linux	ABTK3.2	Full/half sparse matrix writer	BASH [ABTK]
GETPED	Linux/CygWin	ABTK3.2	Animal model pedigree builder	BASH [ABTK]
MAKEA	Linux	1.2(2002)	Relationship matrix builder	BASH
SNRM	Linux/Unix	1.0(1998)	Inverse relationship matrix builder	C
PEDORD	Linux/Unix	1.0(1998)	Ordered pedigrees for genetics	C
CANAGE	Win32	1.0(1996)	Crossbred genetic effect coefficients	FORTTRAN

7. Research Projects, Programs and Related Revenues

Crews, D.H., Jr., The CSU Feed Intake Unit

- a. *CSU Feed Intake Unit Research Component: Data Collection, Analysis and Archiving*
Average (2009-2012): 550 head-days x 90-d test length x \$1.20 hd/d (Total: \$237,600)
Cattle Sources: Leachman Cattle of Colorado, CSU, USDA-MARC, Rex Ranch (Deseret)
- b. *Operational Revenue/Cost Recovery (generated to CSU-ARDEC, Approximate Total \$505,300)*
Average (2009-2012): 550 head-days per year (198,000 head-days 2009 – 2012)
 - \$0.35 per head day standard yardage (Total: \$69,300)
 - 110% feed production cost recovery/feed delivery (\$2.20 hd/d, Total: \$435,000)
 - VTH Cost-recovery: Veterinary Services, Necropsy (Approximate Total : \$1,000)
 - Updates and Revisions to CSU IACUC Project 1356-A “CSU Feed Intake Unit)

Enns, R.M. and **D.H. Crews, Jr.** 2012 – 2015. Genetic Evaluation of Feed Intake and Utilization. GrowSafe Systems, Ltd., Midland Bull Test, and ProfitMaker Bulls. 2012-20123 Budget: \$30,000, 2013 – 2015 Budget: \$5.50 per head to update evaluation results.

Crews, D.H., Jr. and R.M. Enns. 2012 – 2015. Model Development, Parameter Estimation, EPD Prediction, and Index Development for GenusPLC/PowerLine Beef Genetics. 2012-2013 Budget: \$6,000, 2013-1015 Budget: \$24,000.

Crews, D.H., Jr. 2012. Genetic Evaluation and EPD update for growth and fertility traits. Canadian Charolais Association. \$10,000.

Crews, D. H., Jr. and R. M. Enns. *Ongoing*. The Colorado State University Center for Genetic Evaluation of Livestock. Estimated Annual Budget: \$150,000. Development and Implementation of National Cattle Evaluation Programs.

Enns, R. M. and **D. H. Crews, Jr.** 2008-2011. The National Beef Cattle Evaluation Consortium – CSU Component. Estimated Annual Budget: \$125,000. Development of Genetic Evaluation Programs for Novel Traits.

Crews, D. H., Jr. 2008-2010. The CSU Feed Intake Unit (construction plus start-up). CSU Agricultural Experiment Station, Vice-President for Research, College of Agricultural Sciences and Department of Animal Sciences. \$350,000.

Crews, D. H., Jr. and C. Li. 2007-2011. Candidate and multiple gene approaches to genetic improvement of economically important traits in cattle. Agriculture and Agri-Food Canada, Budget: CDN\$696,400.

Crews, D. H., Jr., D. A. Kenny, B. Wickham, and M. McGee. 2007-2011. Development of Genetic Evaluation Systems for Beef Bull Performance and Feed Efficiency in Ireland. University College Dublin, TEAGASC, and Irish Cattle Breeding Federation. Budget: €540,000.

8. Journal Editorial Affiliations

Editorial Board Member, Journal of Animal Science, Breeding and Genetics Section. 2002-04. (G. L. Bennett, Division Editor) and 2005-07 (M. A. Elzo, Division Editor).

Editorial Board Member, The Professional Animal Scientist. 2001-06. (L. L. Wilson, Editor in Chief) and 2006-07 (W. Kellogg, Editor in Chief).

Associate Editor, Animal Genetics, Journal of Animal Science. 2007-09. (M. E. Davis, Division Editor).

Associate Editor, Canadian Journal of Animal Science. 2008-2009. (C. Farmer, Editor).

Division Editor, Animal Genetics, Journal of Animal Science. 2009-2013 (S. Zinn, Editor in Chief).

Invited Reviewer: Journal of Animal Science, Animal, Journal of Dairy Science, Journal of Animal Breeding and Genetics, Professional Animal Scientist, BMC Genetics, Canadian Journal of Animal Science.

9. Teaching/Advising

9.1 Colorado State University (Fall, 2008 – Present)

ANEQ334 – Principles of Equine Genetics (required; 2 cr, 45 total students in 2011 and 2012)

Guest Lectures: ANEQ180, 102, 478, 101 (by request each semester)

ANEQ575 – Computational Biology in Animal Breeding (3 cr, 11 total students)

ANEQ731 – Advanced Genetic Prediction (3 cr, 5 total students)

ANEQ792 – Breeding and Genetics Seminar (co-leader; 1 cr, multiple students, average 7 per year)

9.2 Colorado State University Undergraduate Advising and Special Projects

Natalie Paranto (2012). Equine Sciences Senior Honors Thesis

Jocelyn Cuthbert (2012-2013). ANEQ334/ANEQ486. Undergraduate TA in Equine Genetics
2009 – 2012. 11 undergraduate advisees

9.3 University of Alberta (through 2008)

AFNS500 – Genetic Prediction (3 cr, 2 total students)

AFNS385 – Introduction to Animal Breeding (guest lecturer; 3 cr)

9.4 University of Lethbridge (through 2007)

BIOL3850 - Genetics of Livestock Improvement (3 cr, 120 total students)

10. Graduate Students

10.1 Students in Progress

Name	Degree	Area	Institution
Brian Brigham	Ph.D.	Livestock Genetics	Colorado State University
Emma Huff	M.S.	Beef Cattle Genetics	Colorado State University
Xi Zeng	Ph.D.	Beef Cattle Genetics/Genomics	Colorado State University
Chase McAllister	Ph.D.	Breeding and Genetics	Colorado State University
Hamad Saad	Ph.D.	Breeding and Genetics	Colorado State University
Natalie Berge	M.S.	Breeding and Genetics	Colorado State University
Cyril Ibeka	M.Sc.	Breeding and Genetics	Colorado State University

10.2 Completed Students

Name	Degree	Year	Area	Institution
Rebeca Cockrum	Ph.D.	2012	Livestock Genetics	University of Wyoming
Scott Speidel	Ph.D.	2011	Beef Cattle Genetics	Colorado State University
Amanda Pepper	M.S.	2010	Livestock Genetics	Colorado State University
Denis Mujibi	Ph.D.	2010	Beef Genetics/Genomics	University of Alberta
Alan Kelly	Ph.D.	2010	Beef Cattle Genetics	University College Dublin
John Crowley	Ph.D.	2010	Beef Genomics/Genetics	University College Dublin
Cory Pendley	M.S.	2010	Beef Nutrition/Physiology	Colorado State University
Chase McAllister	M.S.	2010	Beef Cattle Genetics	Colorado State University
Khandker Islam	M.S.	2010	Beef Cattle Genetics	University of Alberta
Laura Sherman	M.S.	2009	Beef Cattle Genetics	University of Alberta
Leo Brito	Ph.D.	2009	Beef Cattle Genetics	University of Saskatchewan
Reynold Bergen	Ph.D.	2006	Beef Cattle Genetics	University of Guelph
Juliano Jubileu	Ph.D.	2005	Beef Cattle Genetics	Colorado State University
Darrell Hickman	M.S.	2003	Breeding and Genetics	Oklahoma State University
D. P. Rasali	M.S.	2003	Bovine Nutrition	University of Manitoba

11. Professional Memberships and Committee Assignments

American Society of Animal Science (ASAS)

National Beef Cattle Evaluation Consortium (NBCEC) Feed Intake/Efficiency Working Group

Western Regional Committee WERA-1, "Beef Cattle Breeding in the Western Region" (1998-2008)

North Central Regional Committee NCR-199, "National Cattle Evaluation Procedures"

Western Regional Committee W1010, "Feed Intake and Efficiency in Beef Cattle"

American Registry of Professional Animal Scientists (ARPAS):

Certification in Beef Cattle (PAS, 1994)

Diplomate, American College of Animal Genetics (Dpl. ACAG, 1998)

Breed Improvement Committee Advisor:

Canadian Angus Association

Canadian Charolais Association

Canadian Hereford Association

American Simmental Association

Red Angus Association of America

American Braunvieh Association

American Shorthorn Association
 North American Limousin Foundation
 Graduate Competition Committee, Western Section ASAS (Chair: 2003 and 2005)
 FASS Breeding and Genetics Program Committee (Chair: 2004)
 ASAS Beef Species Program Committee (Chair: 2007)
 Editor, *Advances in Beef Cattle Science, Volume 1*, AAFC – LRC (2001)
 National Beef Sciences Seminar (NBSS) Planning Committee (2001)
 Livestock Opportunities Review Committee, Alberta Agriculture Research Funding Consortium
 Lethbridge Research Center Advisory Committee (2004-05)
 Western Section ASAS Advisory and Coordinating Committee (2007-09)
 AAFC RES-3 Scientist Promotion Review Committee (2007, 2008)
 Beef Improvement Federation Subcommittee on Feed Intake Recording (Chair, 2007-09)
 USDA Scientific Quality Review (OSQR) Committee NP101 – Genetics and Nutrition (2007)
 Beef Improvement Federation Awards Committee (2008, 2009)
 Beef Improvement Federation Program Planning Committee (2008)
 Secretary/Treasurer, Western Section ASAS (2008-09) and 2009 Host Committee Chair
 President-Elect, Western Section ASAS (2009-2010)
 Colorado State University Faculty Council (2009-2014)
 Colorado State University Feed Intake Steering Committee (2009 – Present)
 Colorado State University ARDEC Management Committee (2009 – Present)
 Chair (2010), North Central Regional Committee NCR-199, “National Cattle Evaluation Proc.”
 Board Member, Genetics, American College of Animal Scientists, ARPAS-ACAS (2010 - Present)
 President, Western Section ASAS (2010-2011)
 Colorado State University Department of Animal Sciences Curriculum Committee (2011 – Present)
 Past-President, Western Section ASAS (2011-2012)

12. Invited Presentations

Challenges with National Evaluation of Efficiency. 7/2/10. W1010 Conference, Columbia, MO
 Phenomics and Genomic Selection Tools. 6/3/10. International VII Simcorte, Viçosa, MG, Brazil
 A Beef Genetics Game Changer. 3/26/10. Leachman 20/20 Visions Conference, Fort Collins, CO
 Genetics of Efficiency. 3/25/10. 2010 Colorado Nutrition Roundtable, Fort Collins, CO
 Genetics of Intake. 12/3/09. CO Dept. of Ag. Russian Delegation Tour, Fort Collins (ARDEC), CO
 Genomic Evaluation of Feed Intake. 11/18-19/09. CSU Beef Extension Training, Salida, CO
 Aggregate Stayability EPD for Beef Cattle. 10/19/09. NCERA-199, Columbia, MO
 Computational Methods for Feed Utilization EPD. 10/7-9/09. University of Missouri, Columbia, MO
 Beef Genetics Research at CSU. 8/19/09. CSU Beef Team Retreat, Fort Collins (ARDEC), CO
 Feed Intake Testing Unit at CSU. 6/19/09. WERA-1, Fort Collins, CO
 Feed Intake Testing Unit at CSU. 6/5/09. Deseret Ranches, Fort Collins (ARDEC), CO
 Feed Intake Testing Unit at CSU. 4/30/09. North American Limousin Foundation, Sacramento, CA
 Computational Methods for Feed Utilization EPD. 4/28/09. W1010, Davis, CA.
 Feed Intake Testing Unit at CSU. 4/24/09. American Gelbvieh Association, Denver, CO
 The Big Picture of Feed Efficiency. 1/27/09. Colorado Beef Day, Greeley, CO
 Genetics of intake and efficiency. 12/9/08. 8th Genetic Prediction Workshop, Kansas City, MO
 Genetics of fertility and performance. 12/3/08. CSU Taylor Memorial Symposium, Fort Collins, CO
 Beef Genetic Improvement. 11/20/08. Colorado Cattlemen’s Association, Colorado Springs, CO
 Traditional and Marker Assisted Selection. 11/4/08. CSU Animal Sciences Seminar, Fort Collins, CO
 Genetics of Feed Utilization. 10/9/08. 43rd Pacific NW Animal Nutrition Conference, Tacoma, WA
 Marker Assisted Evaluation. 7/2/08. Beef Improvement Federation Meetings, Calgary, AB
 Genetic Improvement with Markers. 6/19/08. Saskatchewan Vet. Med. Assoc., Saskatoon, SK

Lecture Series on Genetic Prediction and Feed Efficiency. 11/9-16/07. University College Dublin
 BIF Feed Intake Guidelines Update. 6/8/07. Beef Improvement Federation Meetings, Ft. Collins, CO
 Evaluation of Cow Efficiency. 6/8/07. Beef Improvement Federation Meetings, Ft. Collins, CO
 Genetic Evaluation of Efficiency. 11/8/06. Charolais World Congress Keynote, Edmonton, AB
 Multiple Gene Selection for Efficiency. 8/17/06. 8th WCGALP, Belo Horizonté, MG, Brazil
 Retail Product Evaluation. 4/21/06. American Simmental SimTech, Choctaw, MS
 Genetics of Residual Feed Intake. 4/20/06. Beef Improvement Federation Meetings, Choctaw, MS
 EPD in Angus Cattle. 2/17/06. Canadian Junior Angus GOAL Conference, Calgary, AB
 Genetics of Efficient Feed Utilization in Cattle. 9/25/05. University College Dublin, Ireland
 Parameters for Residual Feed Intake. 8/19/05. NBCEC Efficiency Workshop II, Ardmore, OK
 Maternal Productivity Selection. 7/7/05. Beef Improvement Federation Meetings, Billings, MT
 Quantitative Genetics and Feed Efficiency. 5/26/05. Invited Seminar, University of Guelph, ON
 Large Scale Genetic Prediction. 2/28/05 – 3/4/05. Univ. Alberta Lecture Series, Edmonton, AB
 Quantitative Genetics and Feed Efficiency. 3/25/05 NBCEC Efficiency Workshop I, Bell Ranch, NM
 National Cattle Evaluation and Efficiency. 7/26/04. Invited ASAS Symposium, FASS, St. Louis, MO
 Marker Assisted Evaluation of Feed Efficiency. 7/22/04. Can. Soc. Anim. Sci., Edmonton, AB
 National Cattle Evaluation of Carcass Merit. 12/9/03. University of Alberta Seminar, Edmonton, AB
 Genetic Evaluation using Ultrasound. 11/25/03. CUP Seminar, Can. West. Agribition, Regina, SK
 RFI: Challenges and Opportunities. 11/10/03. WCC-92 Energetics, Reno, NV
 Genetic Evaluation Programs for Feed Efficiency. 11/10/03. WCC-92 Energetics, Reno, NV
 Beef Genetic Parameters (Invited Symposium Chair). 6/23/03. FASS Annual Meetings, Phoenix, AZ
 Genetics of Efficiency in Beef Cattle. 6/6/03. WCC-1, Lethbridge, AB
 RFI: Challenges and Opportunities. 5/30/03. Beef Improvement Federation, Lexington, KY
 Selection for Maternal Productivity. 5/29/03. Beef Improvement Federation, Lexington, KY
 Simmental Carcass Evaluation: EPD Validation. 5/28/03. ASA SimSeminar, Lexington, KY
 Genetics of RFI in Beef Cattle. 3/28/03. Olds College Seminar, Olds, AB
 Carcass Merit Evaluation with Ultrasound. 9/17/02. NCR-199, Kansas City, MO
 Evaluation of Simmental Carcass Merit. 6/10/02. ASA SimSeminar, Omaha, NE
 Ultrasound in Beef Genetic Evaluation. 3/16/03. BC Hereford Association, Kelowna, BC
 Genetic Evaluation and Livestock Improvement. 2/7/02. University of Lethbridge, AB
 Improving Economic Merit. 11/15/01. Canada National Beef Science Seminar, Lethbridge, AB
 Parameters for Genetic Evaluation with Ultrasound. 3/22/01. American Simmental, Havre, MT
 Genetics of Carcass Merit (Invited Symposium Chair). 7/26/00. FASS, Baltimore, MD
 Ultrasound and Feed Intake. 6/9/00. WCC-1, Reno, NV
 Research in Livestock Sciences. 5/25-27/00. BC Cattlemen's Association, Cranbrook, BC
 Understanding and Marketing EPD. 2/5/00. Alta Genetics, Ltd., Calgary, AB
 Genetic Evaluation and EPD. 1/5/00. Canadian Salers Association, Calgary, AB
 Genetics Research within AAFC. 6/15/99. WCC-1, Blacksburg, VA
 Genetic Evaluation of Carcass Merit. 3/26/99. Canadian Limousin Association, Calgary, AB
 Maternal Productivity. 2/22/99. Canadian Hereford Association, Calgary, AB
 EPD: A Commercial Tool. 2/6/99. Saskatchewan Cattle Feeders, Saskatoon, SK
 Genetics Research and Charolais. 12/11/98. Alberta Charolais Association, Red Deer, AB
 Ultrasound in Beef Genetic Evaluation. 10/15-17/98. WCC-100, Bozeman, MT

13. Academic and Professional Awards and Honors

President, Western Section, American Society of Animal Science (2010-2011)
 Secretary-Treasurer, Western Section, American Society of Animal Science (2008-2009)
 Certificate of Recognition, Associate Editor, Canadian Journal of Animal Science (2009)
 Certificate of Recognition, Associate Editor in Animal Genetics, Journal of Animal Science (2009)

Award of Thanks, Canadian Junior Angus Association (2006)
ASAS Appreciation Certificate for Service on JAS Editorial Board (2005)
Alberta Agriculture Performance Excellence (Bronze) Award (2005)
Young Scientist Award, Western Section, American Society of Animal Science (2004)
Southern Section, American Society of Animal Science, Graduate Presentation (1st place, 1997)
Beef Improvement Federation Frank Baker Award (1996)
Beef Improvement Federation Frank Baker Award (1995)
Who's Who Among Students in American Colleges and Universities (1995)
Gamma Sigma Delta (1993)
Phi Tau Sigma, Honor Society for the Food Sciences (1993)
Alpha Zeta, Honor Fraternity for Agriculture (1991)
University of Florida Blue Key (1987)
Florida Farm Bureau Joel Garrard Memorial Scholarship (1985-89)

14. References

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