

Milton G. Thomas, Ph.D.

CURRENT POSITION-TEXAS A&M UNIVERSITY: 2022-present: Professor, Beef Cattle Systems, Texas AgriLife Research, Beeville. 100% Research. milton.thomas@ag.tamu.edu, 3507 US-59 East, Beeville, TX 78102, phone: 361-358-6390

EDUCATION and TRAINING:

2011 McMaster Visiting Fellow, Bovine Genomics, CSIRO, Brisbane, QLD, AU
2010-2011 Lead²¹, Leadership Training for Land Grant Institutions and USDA-AFRI
2006 Mini-Sabbatical, USDA-NRI, Bovine Genomics, University of California-Davis
1995-1997 Postdoc., USDA-NRI, Growth and Development, University of Missouri-Columbia
1994-1995 Postdoc., Molecular Biology, Univ. of Texas Institute of Biotechnology, San Antonio
1990-1994 Ph.D., Reproductive Physiology, Texas A&M University, College Station
1988-1990 M.S., Dairy Science-Reproductive Physiology, University of Missouri, Columbia
1984-1988 B.S., Animal Science, University of Missouri, Columbia

PRIOR EMPLOYMENT:

2012-2022 John E. Rouse Chair of Animal Breeding, Colorado State University
2019 Interim Head of the Department of Animal Sciences, Colorado State University (6 months)
2010-2011 Gerald Thomas Chair in Food Production and Natural Resources, New Mexico State University
2008-2011 Professor (30% teaching:70% research), New Mexico State University
2003-2008 Associate Professor (30% teaching:70% research), New Mexico State University
1997-2003 Assistant Professor (50% teaching:50% research), New Mexico State University
1984-1988 Student laboratory worker, sperm physiology, Dept. of Dairy Science, University of Missouri

PROFESSIONAL ORGANIZATIONS:

American Society of Animal Science, American Registry of Professional Animal Scientists, International Society of Animal Genetics, National Animal Genome Research Program (NRSP-8; 2000-2022)

PROFESSIONAL AWARDS & NOTABLE SERVICE:

Officer for Western Sect. American Society of Animal Sciences, 2020-2024 (2022-Secretary and Program Chair).
Editorial board for Journal of Animal Science, 2003-2006 and 2018-2021
Editorial Board for Front. in Veterinary Science; Animal Reproduction (therio) and Livestock Genomics, 2016-2022
Editorial Board for Domestic Animal Endocrinology, 2010-2016
Director-at-Large and Recording Secretary: Board of Directors American Society of Animal Science, 2007-2010
New Mexico State University College of Agriculture and Home Economics Distinguished Research Award, 2004
Distinguished Service Award, Beef Improvement Federation, 2022

PUBLICATIONS:

Peer-Reviewed Journals	= 116
Text Book(s), Chapters	= 2
Peer-Reviewed Proceedings (WCGALP), Agricultural Experiment Station Research Reports, etc.	= 26
Manuscripts submitted or in preparation for peer-review journals	≥ 9
Team member/Collaborator Peer-Reviewed Journals (not co-author), videography	= 4
Western Section ASAS and various other proceedings papers, etc.	= 74
Abstracts	= 236
Invited Academic, Scientific and Technical Presentations	= 41
Extension Presentations	= 77
Extension Articles, Cattle Growers Reports, and Industry Advisory Board Reports	= 88

AES and EXTRAMURAL FUNDING: ~\$6.4 million from grants, donations, and AES. Seedstock sales via the NMSU Bull Sale: ~\$1.2 million (1998-2011) and CSU Rouse Angus Bull sale: ~\$1.1 million (2012-2022).

RESEARCH ADVISEMENT/MENTORSHIP:

Postdoc = 2, Ph.D. = 16, M.S. = 16; Undergraduate > 40; Graduate Committees > 50; Faculty/Sabbatical = 5

Ph.D. Dissertation:

Dietary fat intake, metabolic hormone secretion, and ovarian physiological function in cows. Texas A&M University, 1994.

M.S. Thesis:

The effects of collection cone type and urethral process amputation on semen collection of the ram. University of Missouri, 1990.

Peer-Reviewed Journals:

116. A.D. Del Rio-Aviles, A. Correa-Calderon, L. Avendano-Reyes, U. Macias-Cruz, **M.G. Thomas**, R.M. Enns, S.E. Speidel, M.A. Sanchez-Castro, R. Zamorano-Algandar, P.A. Lopez-Castro, and P. Luna-Nevarez, 2022. Mineral supplementation (injectable) improved reproductive performance in Holstein cows managed in a warm-summer environment. *Reprod. Domest. Anim.* 57:839-848. doi:10.1111/rda.14125.
115. R. Zamorano-Algandar, J.F. Medrano, **M.G. Thomas**, R.M. Enns, S.E. Speidel, M.A. Sanchez-Castro, G. Luna-Nevarez, J.C. Leyva-Corona, and P. Luna-Nevarez. 2022. Effect of environmental heat stress on the lactation curve in primiparous and multiparous Holstein dairy cows managed in a semi-desert climate. *Trop. Anim. Health Prod.* 54:88. doi:10.1007/s11250-022-03098-7.
114. B.E. Liebig, J.V. Bishop, K.D. McSweeney, H. Van Campen, C. Gonzalez-Berrios, T.R. Hansen, and **M.G. Thomas**. 2022. Direct genomic value daughter pregnancy rate and services per conception are associated with characteristics of day 16 conceptuses and hormone signaling for maternal recognition of pregnancy in lactating Holstein cows. *Appl. Anim. Sci.* 38:157-169. Doi.org/10.15232/aas.2021-02225.
113. C. Zhai, L.C. Li Puma, A.J. Chicco, A. Omar, R.J. Delmore, I. Geonaras, S.E. Speidel, T.N. Holt, **M.G. Thomas**, R.M. Enns, and M.N. Nair. 2022. Pulmonary arterial pressure in fattened Angus steers at moderate altitude influences early postmortem mitochondria functionality and meat color during retail display. *J. Anim.* 100:1-9. Doi.org/10.1093/jas/skac002.
112. A.D. Del Rio-Aviles, A. Correa-Calderon, L. Avenado-Reyes, U. Macias-Cruz, M.A. Sanchez-Castro, **M.G. Thomas**, R.M. Enns, S.E. Speidel, R. Zamorano-Algandar, J.C. Leyva-Corona, C. Garcia-Benitez, and P. Luna-Nevarez. 2021. Effects of an injectable mineral supplementation on physiological responses and milk production of heat-stressed Holstein cows. *J. Anim. Behav. Biometeor.* 9:2116. doi:10.31893/jab.21016.
111. J.F. Torres-Simental, C. Pena-Calderon, L. Avendano-Reyes, A. Correa-Calderon, U. Macias-Cruz, A. Rodriguez-Borbon, J.R. Reyna-Granados, F. Rivera-Acuna, **M.G. Thomas**, and P. Luna-Nevarez. 2021. Predictive markers for superovulation response and embryo production in beef cattle managed in NorthWest Mexico are influenced by climate. *Livest. Sci* 250:105490. <https://doi.org/10.1016/j.livsci.2021.104590>.
110. N.I. Angulo-Valenzuela, **M.G. Thomas**, D.G. Riley, J.F. Medrano, and P. Luna-Nevarez. 2021. A SNP within the PMCH gene as molecular marker associated to fertility traits in Angus and Brangus heifers raised in desert environment (short communication). *Trop. Anim. Health Prod.* 53:355.
109. R. Zamorano-Algandar, M.A. Sanchez-Castro, A.I. Hernandez-Cordero, R.M. Enns, S.E. Speidel, **M.G. Thomas**, J.F. Medrano, G. Rincon, J.C. Leyva-Corona, J.R. Reyna-Granados, P. Luna-Nevarez. 2021. Molecular breeding value estimation from candidate genes associated with reproductive traits in lactating Holstein cows managed in warm environmental conditions. *Livst. Sci.* 250:104536. doi:10.1016/j.livsci.2021.104536.
108. D.W. Bailey, M.G. Trotter, C. Tobin, and **M.G. Thomas**. 2021. Opportunities to apply precision livestock management on rangelands. *Front. Sustain. Food Sys: Agroecology and Ecosystems Services*. E-pub. 611915. doi: 10.3389/fsufs.2021.611915
107. S.O. Peters, M. Sinecen, K. Kizilkaya, and **M.G. Thomas**. 2020. Genomic prediction with different heritability, QTL, and SNP panel scenarios using artificial neural network. *IEEE Access* 8:147995-148006. doi:10.1109/ACCESS.2020.3015814.
106. T.D.P. Paim, E.H.A. Hay, C. Wilson, **M.G. Thomas**, L.A. Kuehn, S.R. Paiva, C.M. McManus, H. Blackburn. 2020. Genomic breed composition of selection signatures in Brangus beef cattle. *Front. Genet.: Livestock Genomics.* 11:710. doi:10.3389/fgene.202000710.
105. H. Saad, **M.G. Thomas**, S.E. Speidel, K. Peel, M. Frasier, and R.M. Enns. 2020. Differential response from selection for high calving ease versus low birthweight in American Simmental Cattle. *J. Anim. Sci.* 98:(epress). doi:10.1093/jas/skaa162

104. S.E. Speidel, **M.G. Thomas**, T.N. Holt, and R.M. Enns. 2020. Evaluation of the sensitivity of pulmonary arterial pressure to elevation using a reaction norm model in Angus cattle. *J. Anim. Sci.* 98:1-5. doi.org/10.1093/jas/skaa129.
103. C.F. Pierce, S.E. Speidel, S.J. Coleman, R.M. Enns, D.W. Bailey, J.F. Medrano, A. Canovas, P.J. Meiman, L.D. Howery, W.F. Mandeville, and **M.G. Thomas**. 2020. Genome-wide association studies of beef cow terrain-use traits using Bayesian Multiple SNP regression. *Livest. Sci.* 232:103900; doi: 10.1016/j.livsci.2019.103900.
102. T.D.P. Paim, E.H. Hay, C. Wilson, **M.G. Thomas**, L.A. Kuehn, S.R. Paiva, C. McManus, and H.D. Blackburn. 2020. Dynamics of genomic architecture during composite breed development in cattle. *Anim. Genet.* 51:224-234. doi:10.1111/age.12907.
101. M.S. Tahir, L.T. Nguyen, B.L. Schulz, G.A. Boe-Hansen, **M.G. Thomas**, S.S. Moore, L.Y. Lau, and M.R.S. Fortes. 2019. Proteomics recapitulates ovarian proteins relevant to puberty and fertility in Brahman heifers. *Genes* 10:923. Doi:10.3390/genes10110923.
100. K.M. Klohonatz, S.J. Coleman, A.D. Islas-Trejo, J.F. Medrano, A.M. Hess, T. Kalbfleisch, **M.G. Thomas**, G.J. Bouma, J.E. Bruemmer. 2019. Coding RNA sequencing of equine endometrium during maternal recognition of pregnancy. *Genes* 10:749. Doi:10.3390/genes101100749.
99. B.C. Krehbiel, **M.G. Thomas**, C.S. Wilson, S.E. Speidel, R.M. Enns, S.R. Paiva, and H.D. Blackburn. 2019. Evaluation of genetic structure across U.S. climate zones using prominent AI sires of Red Angus cattle. *Livestock Sci.* 225:26-31. doi:10.1016/j.livsci.2019.04.012.
98. R.R. Cockrum, S.E. Speidel, N.F. Crawford, X. Zeng, H.D. Blackburn, T. Holt, R.M. Enns, and **M.G. Thomas**. 2019. Genotypes identified by genome-wide association analyses influence yearling pulmonary arterial pressure and growth traits in Angus heifers from a high-altitude beef production system. *Livestock Sci.* 224:75-86. doi.org/10.1016/j.livsci.2019.04.004.
97. G.M. Krafusur, J.M. Neary, F. Garry, T. Holt, D.H. Gould, G.L. Mason, **M.G. Thomas**, R.M. Enns, R.M. Tuder, M.P. Heaton, R.D. Brown, and K.R. Stenmark. 2019. Cardiopulmonary remodeling in fattened beef cattle: a naturally occurring large animal model of obesity-associated pulmonary hypertension with left heart disease. *Pulm. Circ.* 9:1-13. doi:10.1177/2045894018796804
96. P.A.S. Fonseca, S. Id-Lahoucine, A. Reverter, J.F. Medrano, M.R.S. Fortes, J. Casellas, F. Miglior, L. Brito, M.R.S. Carvalho, F.S. Schenkel, L.T. Nguyen, L.R. Porto-Neto, **M.G. Thomas**, and A. Canovas. 2018. Combining multi-OMICs information to identify key-regulator genes for pleiotropic effect associated with fertility and production traits in beef cattle. *PLOS One* 13:e0205295.
95. R.J. Boldt, S.E. Speidel, **M.G. Thomas**, and R.M. Enns. 2018. Genetic parameters for fertility and production traits in Red Angus cattle. *J. Anim. Sci.* 96:4100-4111. doi:10.1093/jas/sky294.
94. N.F. Crawford, S.J. Coleman, T.N. Holt, S.E. Speidel, R.M. Enns, R. Hamid, and **M.G. Thomas**. 2018. Allele distribution and testing for association between an oxygen dependent degradation domain SNP in EPAS1 and pulmonary arterial pressures in yearling Angus cattle. Submitted: *Ag.-Gene.* 9:27-31. doi:10.1016/j.aggene.2018.07.004.
93. R.C. Pauling, S.E. Speidel, **M.G. Thomas**, T.N. Holt, and R.M. Enns. 2018. Evaluation of moderate to high elevation effects on pulmonary arterial pressure measures in Angus cattle. *J. Anim. Sci.* 96:3599-3605. doi:10.1093/jas/sky292.
92. J.C. Leyva-Corona, J.R. Reyna-Granados, R. Zamorano-Algandar, M.A. Sanchez-Castro, **M.G. Thomas**, R.M. Enns, S.E. Speidel, G. Rincon, J.F. Medrano, and P. Luna-Nevarez. 2018. Polymorphisms within the prolactin and growth hormone/insulin-like growth factor-I functional pathways associated with fertility traits in Holstein cows raised in hot-humid climate. *Trop. Anim. Health Prod.* 50:1913-1920.
91. K.L. DeAtley, M.L. Colgrave, A. Canovas, G. Wiffels, R.L. Ashley, G.A. Silver, G. Rincon, J.F. Medrano, A. Islas-Trejo, M.R.S. Fortes, A. Reverter, L. Porto-Neto, S.A. Lehnert, and **M.G. Thomas**. 2018. Neuropeptidome of the hypothalamus and pituitary gland of indicine x taurine heifers: evidence of differential neuropeptide processing in the pituitary gland before and after puberty. *J. Proteome. Res.* 17:1852-1865. doi:10.1021/acs.jproteome.7b00875
90. L.T. Nguyen, A. Reverter, A. Canovas, B. Venus, S.T. Anderson, A. Islas-Trejo, M.M. Dias, N.F. Crawford, S.A. Lehnert, J.F. Medrano, **M.G. Thomas**, S.S. Moore, and M.R.S. Fortes. 2018. STAT6, PBX2, and PBRM1 emerge as predicted regulators of 452 differentially expressed genes associated with puberty in Brahman heifers. *Front. Genet. – Livstck. Genom.* 9:87; doi:10.3389/fgene/2018.00087.

89. S.E. Speidel, B.A. Buckley, R.J. Boldt, R.M. Enns, J. Lee, M.L. Spangler, and **M.G. Thomas**. 2018. Genome wide association of heifer pregnancy and stayability in Red Angus cattle. *J. Anim. Sci.* 96:846-853. doi:10.1093/jas/sky041/4869971.
88. D.W. Bailey, M.G. Trotter, C.W. Knight, and **M.G. Thomas**. 2018. Use of GPS tracking collars and accelerometers for rangeland livestock production. *Trans. Anim. Sci.* 2:81-88; doi:10.1093/tas/txx006.
87. A.I. Hernandez-Cordero, M.A. Sanchez-Castro, R. Zamorano-Algandar, P. Luna-Nevarez, G. Rincon, J.F. Medrano, S.E. Speidel, R.M. Enns, and **M.G. Thomas**. 2017. Genotypes within the prolactin and growth hormone insulin-like growth factor-I pathways associated with milk production heat stressed Holstein cattle. *Genet. Mol. Res.* 16:gmr16039821. doi:10.4238/gmr16039821.
86. M.M. Dias, A. Canovas, C. Mantilla-Rojas, D.G. Riley, P. Luna-Nevarez, S.J. Coleman, S.E. Speidel, R.M. Enns, A. Islas-Trejo, J.F. Medrano, S.S. Moore, M.R.S. Fortes, L.T. Nguyen, B. Venus, I.S.D.P. Diaz, F.R.P. Souza, L.F.S. Fonseca, F. Baldi, L.G. Albuquerque, **M.G. Thomas**, H.N. Oliveira. 2017. SNP detection in RNA-sequence for puberty in cattle. *Genet. Mol. Res.* 16:gmr16019522. DOI: 10.4238/gmr16019522.
85. N.F. Crawford, R.M. Enns, S.E. Speidel, B. LaShell, T.N. Holt, and **M.G. Thomas**. 2017. Factors influencing pulmonary arterial pressure in cattle: case study of the San Juan Basin Research Center 4-Corners Bull Test data. *Prof. Anim. Scientist* 33:387-392.
84. M. Li, S. Riddle, H. Zhang, A. D' Alessandro, A. Flockton, N.J. Serkova, K.C. Hansen, R. Moldvan, B.A. McKeon, M. Frid, S. Kumar, H. Li, H. Liu, A. Canovas, J.F. Medrano, **M.G. Thomas**, D. Ilioska, L. Plecitan-Hlavata, P. Jezek, S. Pullamsetti, M.A. Fini, K.C. El Kasmi, Q. Zhang, and K. R. Stenmark. 2016. Metabolic reprogramming regulates the proliferative and inflammatory phenotypes of adventitial fibroblasts in pulmonary hypertension through the transcriptional co-repressor C-terminal binding protein-1. *Circulation* 134:1105-1121. doi:10.1161/CIRCULATIONAHA.116.023171.
83. N.F. Crawford, **M.G. Thomas**, T.N. Holt, S.E. Speidel, and R.M. Enns. 2016. Heritabilities and genetic correlations of mean pulmonary arterial pressure and performance traits in Angus cattle at high altitude. *J. Anim. Sci.* 94:4483-4490. DOI:10.2527/jas.2016-0703.
82. J.M. Neary, R.D. Brown, T.N. Holt, K.R. Stenmark, R.M. Enns, **M.G. Thomas**, and F.B. Garry. 2016. Static and dynamic components of right ventricular afterload are negatively associated with calf survival at high altitude. *J. Anim. Sci.* 94:4172-4178. DOI:10.2527/jas.2016-0652.
81. M.R.S. Fortes, L.T. Nguyen, M.M.D.C.A. Weller, A. Canovas, A. Islas-Trejo, L.R. Porto-Neto, A. Reverter, S.A. Lehnert, G.B. Boe-Hansen, **M.G. Thomas**, J.F. Medrano, and S.S. Moore. 2016. Transcriptome analyses identify five transcription factors differentially expressed in the hypothalamus of pre-versus post-pubertal Brahman heifers. *J. Anim. Sci.* 94:3693-3702. DOI:10.2527/jas.2016-0471.
80. A. Gulick, F.B. Garry, T.N. Holt, K. Retallick, R.M. Enns, **M.G. Thomas**, and J.M. Neary. 2016. Calves born and raised at high altitude adapt to hypobaric hypoxia by increasing alveolar ventilation rate but not hematocrit. *J. Anim. Sci.* 94:4167-4171. DOI:10.2527/jas.2016-0718.
79. M.A. Elzo, R. Mateescu, **M.G. Thomas**, D.D. Johnson, C.A. Martinez, D.O. Rae, J.G. Wasdin, M.D. Driver, and J.D. Driver. 2016. Growth and reproduction genomic-polygenic and polygenic parameters and prediction trends as Brahman fraction increases in an Angus-Brahman multibreed population. *Livestock Sci.* 190:104-112.
78. D.W. Bailey, **M.G. Thomas**, T.N. Holt, M.B. Stephenson, R.M. Enns, and S.E. Speidel. 2016. Relationship of pulmonary arterial pressure and terrain use of Angus cows grazing high altitude foothills rangeland. *Livestock Sci.* 190:76-80.
77. R.R. Cockrum, S.E. Speidel, J.L. Salak-Johnson, C.C.L. Chase, R.K. Peel, R.L. Weaver, G.H. Loneragan, J.J. Wagner, P. Boddhireddy, **M.G. Thomas**, K. Prayaga, S. Denise, and R.M. Enns. 2016. Genetic parameters estimated at receiving for circulating cortisol, immunoglobulin G, interleukin 8, and incidence of bovine respiratory disease in feedlot beef steers. *J. Anim. Sci.* 94:2770-2778. DOI:10.257/jas2016-0222.
76. J.C. Leyva-Corona, **M.G. Thomas**, G. Rincon, J.F. Medrano, A. Correa-Calderon, L. Avendano-Reyes, D.M. Hallford, F. Rivera-Acuna, and P. Luna-Nevarez. 2016. Enfriamiento adicional al inicio de verano para mitigar el impacto del estrés por calor en vacas Holstein bajo las condiciones climáticas del noroeste de México. Cooling at the summer onset to mitigate the heat stress in Holstein cows from the northwest Mexico. *Rev. Mex. Cienc. Pec.* 7:415-429.
75. M.R.S. Fortes, L.T. Nguyen, L.R. Porto Neto, A. Reverter, S.S. Moore, S.A. Lehnert, and **M.G. Thomas**. 2016. Polymorphisms and genes associated with heifer puberty. *Theriogenology* 86:333-339.
74. Z-Q Weng, H. Su, M. Saatchi, J. Lee, **M.G. Thomas**, J.R. Dunelberger, and D.J. Garrick. 2016. Genome-wide association study of growth and body composition traits in Brangus beef cattle. *Livestock Sci.* 183:4-11.

73. J.M. Neary, F.B. Garry, T.N. Holt, R.D. Brown, K.R. Stenmark, R.M. Enns, and **M.G. Thomas**. 2015. The altitude at which a calf is born and raised influences the rate at which mean pulmonary arterial pressure increases with age. *J. Anim. Sci.* 93:4714-4720.
72. J.M. Neary, F.B. Garry, T.N. Holt, **M.G. Thomas**, and R.M. Enns. 2015. Mean pulmonary arterial pressures in Angus steers increase from cow-calf to feedlot-finishing phases. *J. Anim. Sci.* 93:3854-3861.
71. M.M. Culbertson, S.E. Speidel, R.K. Peel, R.R. Cockrum, **M.G. Thomas**, and R.M. Enns. 2015. Optimum measurement period for evaluating feed intake traits in beef cattle. *J. Anim. Sci.* 93:2482-2487.
70. M.A. Elzo, **M.G. Thomas**, D.D. Johnson, C.A. Martinez, G.C. Lamb, D.O. Rae, J.G. Wasdin, and J.D. Driver. 2015. Genetic parameters and predictions for direct and maternal growth traits in a multibreed Angus-Brahman cattle population using genomic-polygenic and polygenic models. *Livestock Sci.* 175:18-26.
69. J.H. Newman, T.N. Holt, J. Cogan, B. Womack, J.A. Phillips, C. Li, Z. Kendall, K.R. Stenmark, **M.G. Thomas**, R.D. Brown, S.R. Riddle, J.D. West, and R. Hamid. 2015. Increased prevalence of an EPAS1 (HIF2 α) variant haplotype in cattle with high altitude pulmonary hypertension: brisket disease gene? *Nature Comm.* 6:6863.
68. D.W. Bailey, S. Lunt, A. Lipka, **M.G. Thomas**, J.F. Medrano, A. Canovas, G. Rincon, M.B. Stephenson, and D. Jensen. 2015. Genetic influence on cattle grazing distribution: association of genetic markers with terrain use in beef cows. *Range Ecol. Mgt.* 68:142-149.
67. **Thomas, M.G.**, A. H. Mohamed, M.N. Sawalhah, J.L. Holechek, D.W. Bailey, J.M. Hawkes, P. Luna-Nevarez, F. Molinar, and G. Khumalo. 2015. Long-term forage, cow-calf, and economic performance of two stocking levels on Chihuahuan Desert Rangeland. *Range Ecol. Mgt.* 68:158-165.
66. A. Canovas, A. Reverter, K.L. DeAtley, R.L. Ashley, M.L. Colgrave, M.R.S. Fortes, A. Islas-Trejo, S. Lehnert, L. Porto-Neto, G. Rincon, G.A. Silver, W.M. Snelling, J.F. Medrano, and **M.G. Thomas**. 2014. Multi-tissue omics analyses reveal molecular regulatory networks for puberty in composite beef cattle. *PLOS One* 9:e102551.
65. M.R.S. Fortes, A.H.M.S. Suhaimi, L.R. Porto-Neto, S.M. McWilliam, T. Flatscher-Bader, S.S. Moore, M.J. D'Occhio, C.T. Meira, **M.G. Thomas**, W.M. Snelling, A. Reverter, and S. Lehnert. 2014. Post-partum anoestrous in tropical beef cattle: a systems approach combining gene expression and genome-wide association results. *Livestock Sci.* 166:158-166.
64. T.G. McDanel, L.A. Kuehn, **M.G. Thomas**, W.M. Snelling, T.P.L. Smith, E.J. Pollak, J.B. Cole, and J.W. Keele. 2014. Genome-wide association study of reproductive efficiency in female cattle. *J. Anim. Sci.* 92:1945-1957.
63. T.G. McDanel, L.A. Kuehn, **M.G. Thomas**, E.J. Pollak, and J.W. Keele. 2014. Deletion on chromosome 5 associated with decreased reproductive efficiency in female cattle. *J. Anim. Sci.* 92:1378-1384.
62. A.M. Oberbauer, J.M. Belanger, G. Rincon, A. Canovas, A. Islas-Trejo, **M.G. Thomas**, and J.F. Medrano. 2014. Bovine and murine tissue expression of insulin-like growth factor-1. *Gene* 535:101-105.
61. M.A. Elzo, **M.G. Thomas**, C.A. Martinez, G.C. Lamb, D.D. Johnson, D.O. Rae, J.G. Wasdin, and J.D. Driver. 2014. Genomic-polygenic evaluation of multibreed Angus-Brahman cattle for postweaning feed efficiency and growth using actual and imputed Illumina50K SNP genotypes. *Livestock Sci.* 159:1-10.
60. M.R.S. Fortes, K.L. DeAtley, S.A. Lehnert, B.M. Burns, A. Reverter, R.J. Hawken, G. Boe-Hansen, S. Moore, and **M.G. Thomas**. 2013. Genomic regions associated with fertility traits in male and female cattle: advances from microsatellites to high-density chips and beyond. *Anim. Reprod. Sci.* 141:1-19.
59. M.A. Elzo, C.A. Martinez, G.C. Lamb, D.D. Johnson, **M.G. Thomas**, I. Misztal, D.O. Rae, J.G. Wasdin, and J.D. Driver. 2013. Genomic-polygenic evaluation for ultrasound and weight traits in Angus-Brahman multibreed cattle with the Illumina3k chip. *Livestock Sci.* 153:39-49.
58. S.O. Peters, K. Kizilkaya, D.J. Garrick, R.L. Fernando, J.M. Reecy, R.L. Weaber, G.A. Silver, and **M.G. Thomas**. 2013. Heritability and Bayesian genome-wide association study of first service conception and pregnancy in Brangus heifers. *J. Anim. Sci.* 91:605-612.
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2. **M.G. Thomas**, B. Bao, and G.L. Williams. 1993. Modification of follicular recruitment patterns in cattle through changes in dietary fatty acid consumption. *Baylor Coll. of Med. - Texas A&M Univ. Res. Symp.* 6:70.
1. **M.G. Thomas**, B. Bao, G.L. Williams. 1993. Enhanced follicular development in cows fed supplemental fat may be cholesterol-independent. *J. Anim. Sci.* 71(Suppl 1):211.

Genbank Submissions:

1. *Ovis aries* Pit-1 mRNA, complete cds. U8399.

Invited Academic-Scientific-Technical Presentations:

41. *New trait development for genetic improvement.* Department of Animal Science and Veterinary Technology, Texas A&M University, Kingsville. August 24, 2022.
40. *Managing genetic diversity for future dairy and livestock breeding. Conclusionary remarks for industry strategic planning.* Also served as moderator for several sessions. Discover Conference 42. Naperville, IL. April 19-22, 2022.
39. *Heart failure in beef cattle – PAP EPD development.* International Genetic Solutions (IGS) booth seminar at National Cattlemen’s Beef Association meeting, San Antonio, TX February 5, 2020.
38. *Use of genetic markers to study and potentially improve grazing distribution of beef cattle.* Symposium: Using Genetic Selection as a Tool for Managing Livestock Distribution. Society of Range Management Annual Meeting. Minneapolis, MN. February 13, 2019.

37. *Mid-late feeding mortalities in finishing cattle and potential causes*. Zoetis WebEx for Global Technical Services and Veterinary Medical Research and Development. November, 6, 2019.
36. *Late feeding mortality and pulmonary hypertension*. Think-tank for “Late Day Morbidity Challenges in High Performance Cattle.” Proc. Published by Noble Foundation, Ardmore, OK, September 19, 2019. p. 49-57.
35. *PAP, HMD, FHD: alphabet soup of what we know and don’t know about genetics of pulmonary hypertension in cattle*. BIF Symposium: Advancements in efficiency and adaptability. Brookings, SD, June 19, 2019.
34. *Mid-late feeding mortalities in finishing cattle and potential causes*. Round-table Discussions of Academy of Veterinary Consultants, sponsored by 5-Rivers Cattle Feeding, LLC. Loveland, CO, August 7, 2019.
33. *Mid-late feeding mortalities in finishing cattle and potential causes*. Micronutrients Global Species Council Meeting, Fort Collins, CO, June 5, 2019.
32. *Mid-late feeding mortalities in finishing cattle and potential causes*. Midwest PMS Consultant meeting, Denver, CO, May 7, 2019.
31. *Mid-late feeding mortalities in finishing cattle and potential causes*. Plains Nutrition Conference. San Antonio TX, April 12, 2019.
30. *Mid to late feeding mortalities in finishing cattle and potential causes*. High Plains Beef Symposium – American Society of Animal Sciences. Austin, TX, July, 11, 2019.
29. *Genome-enhanced approaches to improve high-altitude adaptability of Angus cattle*. Plant and Animal Genome XXVII and NRSP8, Cattle, Sheep, Goat Symposium, San Diego, California, January 12, 2019.
28. *Complexity of pulmonary hypertension in cattle: DNA, RNA, PAP; everything is very polygenic - Heart Failure Mini-Symposium*. Academy of Veterinary Consultants (AVC), Denver, CO, 2017.
27. *Genetics of brisket disease in beef cattle: a not so high-altitude problem*. Association for the Advancement of Animal Breeding and Genetics. Townsville, Queensland, Australia, 2017.
26. *Animal Breeding and Genetics at CSU: cattle and study of pulmonary hypertension*. Symposium of Idea Sharing. Universidade Estadual Paulista (UNESP), Jaboticabal, Sao Paulo, Brazil, 2016.
25. *Omics study of pulmonary hypertension: what does this mean for cattle production?* Dairy Science Seminar, Virginia Tech University, Blacksburg, VA, 2016.
24. *Multi-omics approaches to improve heifer fertility: updates from international collaborations*. Animal Reproduction Science Seminar, Virginia Tech University, Blacksburg, VA, 2016.
23. *Multi-omics data resources and use in genetic improvement of cattle growth and health*. Joint Annual Meeting of ASAS-ADSA Symposium on Omics and their use in livestock. Salt Lake City, UT, 2016.
22. *Research in Animal Science: passionate about our science while swimming in a crocodile’s mouth*. College of Agricultural Sciences Departmental Research Symposium, Fort Collins, CO, 2016.
21. *Networks of Genes and People for Genetic Improvement*. Zoetis Key Opinion Leader, Kalamazoo, MI, 2014.
20. *Using molecular and quantitative genetic approaches for greater livestock adaptation to environmental challenges*. Workshop on Genetic Resources and Climate Change. USDA-ARS, Embrapa-Labex of Brasil, and Colorado State University. October 17, 2012.
19. *Use of genomics to aid genetic improvement: emphasis on livestock health and adaptability traits*. Primer Symposium Internacional de Mejoramiento Animal” held at the Instituto Tecnológico de Sonora in Obregon, Mexico, 2012.
18. *Networks of genes and people*. Animal Science Seminar, University of Wyoming, Laramie, WY, 2012.
17. *Gene network analyses of first service conception in Brangus heifers: use of genome and trait associations, hypothalamic-transcriptome information, and transcription factors*. Int. Plant Anim. Genome Conf. Section for Cattle, Sheep and Goats, San Diego, CA, 2012.
- 12-16. *Networks of genes and people*. McMasters Fellowship tour in Australia: Brisbane, Melbourne, Armidale, 2011.
11. *Genomic Information for Physiologists*. Joint Breeding and Genetics and Physiology Symposium presented at ASAS-ADSA meeting Denver, CO, 2010.
10. *SNP diversity in genes of the growth endocrine axis: applications to cattle breeding*. Iowa State University, Department of Animal Science Seminar, 2007.
9. *DNA polymorphisms and metabolic hormones; what have we learned from Bos indicus–influenced cattle*. Louisiana State University Department of Animal Science Seminar, 2005.
8. *Mechanisms regulating feed intake: role of appetite-regulating peptides*. Breeding and Genetics Symposium ASAS-ADSA meeting, St. Louis, MO. 2004.

7. *Genetically Modified Organisms and Animal Production*. All College Conference Symposium, New Mexico State University All College Conference, 2003.
6. *Distance Education and Animal Breeding for M.S. students*. All College Conference Symposium, New Mexico State University All College Conference, 2001.
5. *Growth Hormone: Synthesize or Inject?* University of Arizona Animal Physiology Seminar Series, 1998.
4. *Growth Hormone: Synthesize or Inject?* New Mexico State University Molecular Biology Seminar Series, 1997.
3. *Diet Restriction Abates Reproduction in Beef Cows. Can an Insulinogenic Feed Solve this Problem?* Food for the 21st Century Seminar Series, University of Missouri, Columbia, 1996.
2. *Growth Hormone: Synthesize or Inject*. Food for the 21st Century Seminar Series, University of Missouri, Columbia 1995.
1. *Dietary Lipids and Ovarian Function in the Cow*. Physiology Seminar Series, New Mexico State University, Las Cruces, 1994.

Extension Presentations:

77. *Growth and weights of today's cattle, management implications*. United Ag Drovers Cattleman's College. Caroleta Ranch, Weimar, TX, December 9, 2022.
76. *How proper grazing will reduce weed and brush encroachment*. Krause Ag Service CEU Day, Pawnee (Bee County), TX, November, 2, 2022.
75. *Identifying sustainability and stayability in the cow herd*. 51st Annual South Central Texas Cow-Calf Clinic. Brenham, TX, October 28, 2022.
74. *New trait development for beef cattle grazing in South Texas and Texas AgriLife Research Beeville*. South Texas Farm Show. Victoria, TX, October 26, 2022.
73. *New trait development for beef cattle grazing in South Texas and Texas AgriLife Research Beeville*. Beefmaster Breeder Universal Field Day. Carr Beefmasters, Floresville, TX, October 9, 2022.
72. *Cow size: effects on reproduction and cost (also influences of drought)*. Texas A&M Beef Cattle Short Course section of Reproductive Management. August 1-2, 2022.
71. *Selection for adaptability and sustainability, new trait development for genetic improvement..* Texas A&M Beef Cattle Short Course sections of Cattle Breeds and Selection and Seedstock Improvement. August 1-2, 2022.
70. American Hereford Association and CSU Sustainable Genetics Research, Webinar of new trait development for sustainability. Webinar and video recording, Fort Collins, CO, May 19, 2022.
69. *Ongoing research update on pulmonary hypertension. Pulmonary arterial pressure (PAP) and Heart Scoring Certification for Colorado Veterinarians*. Fort Collins, CO, August 12, 2022.
68. *Feedlot heart disease: new trait development and validation of packing plant heart score*. Beef Improvement Federation Annual Meeting, Las Cruces, NM, June 3, 2022.
67. *Harnessing genetic x environment interactions – are they important in production*. Beef Improvement Federation Annual Meeting, Las Cruces, NM, June 3, 2022.
66. *Animal sciences beef supply chain project: pasture to plate (Ranch to Grill), bringing science to life*. Engaging within our State (Colorado). Webinar, June 30, 2021.
65. *Alignment of the production systems to form a supply chain that will allow both research and curriculum for students to gain hands-on experience*. CSU College of Agricultural Sciences Table Talk. Webinar, January 14, 2021.
64. *Genetics and genomics of beef cattle reproduction*. Florida 70th Beef Cattle Short Course. Webinar, May 6, 2021.
63. *Advancements in understanding PAP as a predictor of pulmonary hypertension in mountain versus feedlot cattle*. R.M. Enns, M.G. Thomas, and S.E. Speidel. Colorado DVM Food Animal Training Program. Fort Collins, CO, April 24, 2021.
62. *Genetics of cattle grazing in the Western U.S*. Blue Ribbon Panel for NRCS. September 21, 2021.
61. *Cattle HAD, FHD, and PAP; understanding pulmonary hypertension in cattle*. National Cattlemen's Beef Association Webinar, Health Issues in Mid-late Fed Cattle. May 5, 2020.
60. *Cattle HAD, FHD, and PAP; understanding pulmonary hypertension in cattle*. Leachman Cattle of Colorado High Altitude Bull Sale, Loma, CO, December 6, 2019.
59. *PAP-an important trait for mountain and feedlot cattle*. Leachman Cattle of Colorado Fall Bull Sale Educational Program. Fort Collins, CO. November 8, 2019.

58. *Genomic approaches to improve grazing distribution*. Beef Improvement Federation Annual Meeting, Loveland, CO. June 20-23, 2018.
57. *Research updates on pulmonary hypertension and feedlot heart disease*. Colorado Veterinary Pulmonary Arterial Pressure Summit. Fort Collins, CO. August 3, 2018.
56. *Heifer selection and DNA tools*. Colorado Jr. Angus Association, Fort Collins, CO. June 1, 2018.
55. *PAP, DNA, and RNA: everything is very polygenic in cattle. Think tank for late feedlot death and pulmonary hypertension*. American Angus Association and Angus Genetics, Inc. Denver, CO, January 8, 2017.
54. *Cattle, DNA, and PAP: everything is very polygenic*. Veterinary PAP Certification Program, Fort Collins, CO, August 1, 2016.
53. *Technological innovations on the horizon in the beef industry*. Beef Sustainability Symposium for Producers, Livestock Veterinarians, and Cattle Industry Leaders. Fort Collins, CO, 2016.
52. *Storage of genomic data for the beef industry: cooperative effort of CSU and USDA-ARS-NAGP*. Beef Breeds Council in conjunction with the Beef Improvement Federation Meeting, Manhattan, KS, 2016.
51. *Implementation of genetic selection for grazing distribution to make cattle grazing in the Western U.S. more sustainable*. Poster presentation at the Grazing Livestock Nutrition Conference, Park City, UT, 2016.
50. *Genetic tools to build more productive cow herds and more valuable feeder and fed cattle*. Zoetis Beef University, Fort Collins, CO, 2016.
49. *Sorting through the science, marketing and realities of DNA tools for genetic prediction in beef cattle*. Colorado Ranching Legacy Group. Fort Collins, CO, 2016
48. *Brisket disease: it's not just high altitude disease. Researchers are finding genetic component for pulmonary artery hypertension*. Interview for Angus Journal. May, 2016, p. 54-58.
47. *Basic genetics: DNA-RNA-Protein*. CSU-Equine Genetics Short Course, Fort Collins, CO, 2015.
46. *Basic genetics: gene based physiology*. CSU-Equine Genetics Short Course, Fort Collins, CO, 2015.
45. *Sorting through the science, marketing and realities of DNA tools for genetic prediction in beef cattle*. Nick Petry Workshop, Denver, CO, 2015.
44. *Genomics (not single gene) of bovine pulmonary hypertension and the future of possible genetic markers or variants*. CSU Veterinary Continue Education Program, Fort Collins, CO, 2014.
43. *Update of the 50K molecular genetics project*, International Brangus Breeders Association Convention, Houston, TX, 2014.
42. *Overview of the 50K molecular genetics project*, International Brangus Breeders Association Convention, Houston, TX, 2013.
41. *Selection indexes and their use in the beef industry*, Leachman Cattle Co. Profit Discovery Symposium, Fort Collins, CO, 2013.
40. *Beyond 50K, genomic data of the future*, Young Guns Beef Symposium, RAAA, ASA, and AGA breed Associations, Loveland, CO, 2013.
39. *Sorting through the science, marketing, and realities of DNA tools for genetic prediction*. Range Beef Cow Symposium, Rapid City, SD, 2013.
38. *Genomics and EPD*, British Beef Production Tour, CSU, Fort Collins, CO, 2013.
37. *What's new in Beef Cattle Genomics*, Uruguay Beef Production Tour, CSU, Fort Collins, CO, 2012.
36. *Genetics of Carcass Traits*. Colorado Ranch Practicum, CSU, Fort Collins, CO, 2012.
35. *ERT for Reproduction, examples from study of cow size and fertility*, Beef Improvement Federation Meeting, Houston, TX, 2012.
34. *Cow size and Fertility*, Leachman Cattle Company Symposium, Loveland, CO, 2012.
33. *Genetic markers: understanding concepts to continue genetic improvement*. NM Cattle Growers – Cattleman's College. Albuquerque, NM 12/1/2011.
32. *Genetics of heifer fertility*. Beef Improvement Federation meeting. Columbia, MO, 6/30/2010.
31. *Molecular advancements in Reproduction: from hair to calves to calves*. NBCEC Winter Workshop. Denver, CO, 12/3/2009.
30. *Genetic markers: understanding concepts to continue breed improvement*. International Brangus Breeders Association meeting, Oklahoma City, OK, 3/23/2009.
29. *Update from the Adhoc DNA Technology Committee*, International Brangus Breeders Association meeting, Houston, TX, 3/5/2009.
28. *Update on the USDA-NRI Cattle Reproduction Project*, NBCEC Brown Bag, 10/29/2008.

27. *Update from the Adhoc DNA Technology Committee*, International Brangus Breeders Association meeting, Nashville, TN, 8/8/2008.
26. *Update from the Adhoc DNA Technology Committee*, International Brangus Breeders Association meeting, Houston, TX, 3/5/2008.
25. *Update from the Adhoc DNA Technology Committee*, International Brangus Breeders Association meeting, Houston, TX, 3/5/2007.
24. *Genetic markers for carcass traits*. New Mexico Cattle Growers Short Course, Clovis, NM, March 2006.
23. *Update of Advances in genetic markers for fertility*. Large Herd Managers Symposium. Sponsored by NBCEC, Kansas City, MO, December, 2005.
22. *New Advances in Genetic Tracking*. New Mexico Joint Stockmen's Convention, Cattlemen's College, Albuquerque, NM. 2004.
21. *Beef Industry Overview: become aware of new technologies that will affect our business*. Presentation to the Board of Directors of the International Brangus Breeders Association, Noble Foundation, Ardmore, OK, 2004.
20. *Understanding the Current Status of Genetic Markers*. Presentation to the Breed Improvement Committee of the International Brangus Breeders Association, Houston, TX, 2004.
19. *Managing bulls for optimum complementarity and cowherd adaptability*. Panel discussion for Camp Cooley Ranch, Franklin, TX, 2003.
18. *Research on superiority of Brangus genetics*. International Brangus Breeders Association Whistle Stop Tour. Safford, AZ 2003.
17. *Research on superiority of Brangus genetics*. International Brangus Breeders Association Whistle Stop Tour. Latohatchee, AL 2003.
16. *Research on superiority of Brangus genetics*. International Brangus Breeders Association Whistle Stop Tour. Perry, GA 2003.
15. *Research on superiority of Brangus genetics*. International Brangus Breeders Association Whistle Stop Tour. Reno, NV 2003.
14. *Research on superiority of Brangus genetics*. International Brangus Breeders Association Whistle Stop Tour. College Station, TX 2003.
13. *Breeding for improved fertility*. New Mexico Cattle Grower's Short Course. Farmington, NM 2003.
12. *Knowing sexual maturity in Brangus yearling heifers*. Southwest Brangus Breeders Association Field Day. Clovis, NM 2002.
11. *Advances in genetic technology*. New Mexico Cattle Grower's Short Course. Las Cruces, NM 2002.
10. *Selecting beef cattle breeding stock*. New Mexico Cattle Grower's Short Course. Las Cruces, NM 2002.
9. *Host of the Southwest Brangus Breeders Association Field Day*. Las Cruces, NM 2001.
8. *Dynamics of EPD accuracies*. NMSU Bull Test and Sale Symposium, Las Cruces, NM 2001.
7. *Adding value with genetics*. New Mexico Cattle Grower's Short Course. Clayton, NM 2001.
6. *Beef cattle performance in response to grazing systems and strategies on the Chihuahuan Desert Rangeland Research Center*. New Mexico Cattle Grower's Short Course, Las Cruces, NM 2000.
5. *Animal performance relative to management system and grazing use levels*. Kingston Allotment Field Trip and Seminar. Sponsored by the U.S. Forrest Service. T or C, NM 1999.
4. *Inseminacion artificial y transferencia de embriones*. Reproduccion y Genetica en Ganaderia, ExpoGan-99. Conferencia sponsored by Union Ganadera Regional de Chihuahua, Chihuahua, Chihuahua, Mexico, 1999.
3. *Uniform beef genetics Program: National Cattlemen's Beef Association (NCBA) Carcass Merit Project*. New Mexico Cattle Grower's Short Course, Deming, NM 1999.
2. *Using EPD's to select breeding cattle*. New Mexico Cattle Grower's Short Course, Deming, NM 1998.
1. *Using EPD's to select breeding cattle*. Beef Cattle Management Seminar, Tucumcari, NM 1998.

Extension Articles, Cattle Grower Reports, and Industry Board Advisory Reports.

88. M. Reiman and M.G. Thomas. 2022. Healthy hearts. Start with knowing more. Bovine congestive heart failure research reveals new information. Angus J. August 2022.
87. **M.G. Thomas** and R.M. Enns. 2022. Harnessing genetic x environment (G x E) interactions – are they important in production. Beef Improv. Fed. p. 35-37.
<https://beefimprovement.org/wp-content/uploads/2022/07/BIFproceedings2022.pdf>.
86. R.M. Enns, S.E. Speidel, and **M.G. Thomas**. 2020. Report to ABS Global. Results of pulmonary arterial tests on progeny of ABS Global sires. 8-pages.

85. H. Smith-Thomas with support of **M.G. Thomas**. 2020. New Research probes into feedlot cattle heart failure. *Progr. Cattle*. 8:42-43.
84. **M.G. Thomas**, G.M. Krafur, T.N. Holt, R.M. Enns, and S.E. Speidel. 2020. Understanding late day morbidity in fed cattle: focus on pulmonary hypertension (PH). Proceedings for the Late Day Morbidity Challenges in High Performance Cattle, Industry Think-Tank, Noble Research Institute, Ardmore, OK. September 18-20, 2019.
83. D. Bailey, L. Howery, and **M. Thomas**. 2021. Selecting cattle to improve grazing distribution patterns, rangeland health and water quality. *West. SARE Fact Sheet 2021*. <https://western.sare.org>
82. H. Smith-Thomas with support from **M.G. Thomas**. 2019. Research looks at congestive heart failure in feedlot cattle. *SimTalk* 27(5):30-32.
81. H. Smith-Thomas with support from **M.G. Thomas**. 2019. Research looks at congestive heart failure in feedlot cattle. *Feed-Lot, Feeder Information Highlights* 27(6):14-17.
80. S.E. Speidel, **M.G. Thomas**, and R.M. Enns. 2019. Pulmonary arterial pressure and their utility for cow-calf producers. Proceedings, Range Beef Cow Symposium XXVI, Scotts Bluff, NE.
79. **M.G. Thomas**, C.F. Pierce, R.M. Enns, S.E. Speidel, and D.W. Bailey. 2018. Summary Breeding and Genetics: genetics influences distribution of cows grazing western rangelands. *Co. Beef Res. Rep.* 1:8.
78. S.E. Speidel, R.M. Enns, R.J. Boldt, M.A. Sanchez-Castro, and **M.G. Thomas**. 2018. Summary Breeding and Genetics: further study of fertility traits in Angus cattle may lead to improved EPD strategies. *Co. Beef Res. Rep.* 1:8.
77. **M.G. Thomas**, T.N. Holt, R.M. Enns, S.E. Speidel, S.J. Coleman, M.M. Culbertson, K.J. Jennings, G.M. Krafur, N.F. Crawford, B.C. Krehbiel. 2018. Summary Breeding and Genetics: genetic study of adaptability of beef cattle to altitude. *Co. Beef Res. Rep.* 1:8.
76. C. Pierce, **M.G. Thomas**, M. Enns, and S. Speidel. 2018. Improving beef cow grazing technology distribution using GPS and DNA technology. *Co. Beef Res. Rep.* 1:6.
75. **M.G. Thomas**, 2017. Complexity of pulmonary hypertension in cattle: DNA, RNA, PAP; everything is very polygenic. Proceedings for the American Veterinary Consultants for meeting in Denver, CO, October 10, 2017.
74. H. Blackburn, **M.G. Thomas**, et al., 2017. Strengthening strategic genetic resources for livestock, poultry, and aquatic species in the United States. Report prepared for National Genetic Resource Advisory Council through the National Genetic Resource Preservation Program of USDA-ARS.
73. **M.G. Thomas**, Genomics and Beef Cattle Breeding, *The Ear*, p. 14-15, September 2013. Also published in the journals of ASA, RAAA, and AGA.
72. **M.G. Thomas**, interview for Las Cruces Sun News: Nature or Nurture: Genetics of Grazing Distribution. 8/9/2010.
71. **M.G. Thomas**. 2008. Heifers from balanced EPD sire prove most fertile in Chihuahuan Desert Brangus Breeding program. *Brangus J.* p. 45-47.
70. **M.G. Thomas** and K.L. DeAtley. 2008. IBBA evaluates genetic profiles from Merial-Igenity and Bovigen LLC. *Brangus J.* p. 12 and 44.
69. **M.G. Thomas**, R.M. Enns, and G.A. Silver. 2006. Relationships of DNA polymorphisms in growth hormone (GH) to growth and carcass traits in a population of Brangus bulls with larger number of sires. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 69.
68. D.W. Bailey, **M.G. Thomas**, E. Pollak, and C.C. Bailey. 2006. Role of experience and adaptation on the distribution, behavior and performance of Brangus cattle in the Chihuahuan Desert. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.76.
67. **M.G. Thomas** and A.J. Garrett. 2006. Genetic markers for carcass characteristics: are they economically relevant in your production system? *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 9-11.
66. **M.G. Thomas**. 2006. Researcher says DNA coding can lead to beef tenderness premium. *Livestock Weekly* 58(32):12-13 and 58(22):21-22.
65. F.A. Rodriguez Almeida and **M.G. Thomas**. 2005. El Ganado Brangus y el desierto Chihuahuense: Casos de Éxito en la investigación y el mejoramiento genético basado en el desempeño productivo. *Chih. Ganadero* 37:15 and *El Heraldo de Chih. Expo Gan.*
64. **M.G. Thomas** and J. Spitzer. 2005. Heifer pregnancy EPD: a genetic approach to improving fertility. *Brangus Journal* August edition.
63. D.W. Bailey, H.C. VanWagoner, D.J. Garrick, **M.G. Thomas**, and R. Weinmeister. 2005. Sire and dam effects on distribution patterns of cows grazing mountainous rangeland. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.94.

62. K.L. Shirley, **M.G. Thomas**, D.M. Hallford, G.A. Silver, V.R. Beauchemin, R. Steiner, and R.M. Enns. 2005. Prediction of reproductive traits in Brangus heifers using a SNP and the translated product of the IGF-I gene. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.84.
61. V.R. Beauchemin, **M.G. Thomas**, G.A. Silver, K.L. Shirley, and D.E. Franke. 2005. Variance of growth and carcass measures in *Bos indicus* steers appears to be attributed to sire rather than polymorphisms in the growth hormone (GH) gene or its transcriptional regulators. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.85.
60. K.L. Shirley and **M.G. Thomas**. 2004. Case study in Brangus heifers suggests important consideration of the trait of residual feed intake (RFI). *Commercial Brangus Edition* 11:12-13.
59. V.R. Beauchemin, **M.G. Thomas**, C.C. Bailey, and G.A. Silver. 2004. Early weaning and cow/calf performance: Recent observations in desert Brangus. *Commercial Brangus Edition* 11:15-17.
58. **M.G. Thomas**, R.M. Enns, G.A. Silver, M.D. Garcia, K.L. Shirley, V.R. Beauchemin, and D.M. Hallford. 2004. Growth hormone (GH) gene polymorphisms appear to be differentially influence pituitary responsiveness to growth hormone releasing hormone (GHRH) among *Bos taurus* and *Bos indicus*-derivative cattle. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.78.
57. V.R. Beauchemin, **M.G. Thomas**, C.C. Bailey, and G.A. Silver. 2004. Early weaning and cow/calf performance: Recent observations in desert Brangus. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.79.
56. K.L. Shirley, **M.G. Thomas**, D.H. Keisler, D.M. Hallford, D.M. Montrose, G.A. Silver, and M.D. Garcia. 2004. Evaluation of residual feed intake (RFI) and concentrations of metabolic hormones in developing heifers from sires with differing EPDs for growth and scrotal circumference in a Chihuahuan Desert Brangus breeding program. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.80.
55. L.N. Burcham and **M.G. Thomas**. 2004. Selection for maternal performance in the New Mexico State University Purebred Angus herd yielded steer progeny with profitable feedlot performance. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 81.
54. **M.G. Thomas**, R.M. Enns, G.A. Silver, M.D. Garcia, K.L. Shirley, V.R. Beauchemin, and D.M. Hallford. 2004. Growth hormone gene polymorphisms differentially predict ADG and carcass traits in performance tested Angus and Brangus bulls selected for semi-arid climates. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.82.
53. **M.G. Thomas**. 2003. Review of research on Brangus equals superior environmental compatibility, competitive growth and carcass characteristics, and very tender beef. *Commercial Brangus Edition* 10(1):12 and 24.
52. **M.G. Thomas** and L.N. Burcham. 2003. Chihuahuan Desert Brangus make news. How did maintaining body condition turn into new super desert cows. *Commercial Brangus Edition* 10(2):9, 22, 23, 24, 26.
51. M.D. Garcia, **M.G. Thomas**, W.R. Parker, G.A. Silver, and D.M. Hallford. 2003. Historic growth performance and polymorphisms in the growth hormone gene in beef bulls. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 81.
50. K.L. Shirley, **M.G. Thomas**, D.H. Keisler, D.M. Hallford, D.M. Montrose, G.A. Silver, M.D. Garcia, and L.A. Narro. 2003. Feed intake, serum leptin, and puberty in Brangus heifers sired by bulls with differing EPDs for growth and scrotal circumference. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 80.
49. L.A. Narro, **M.G. Thomas**, M.D. Garcia, D.H. Keisler, M. Amstalden, G.L. Williams, and D.M. Hallford. 2003. Intracerebroventricular infusion of neuropeptide Y and leptin differentially influence the episodic secretion patterns of GH in well-fed ovariectomized cows. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 66-67
48. **M.G. Thomas**. Breeding for improved fertility. 2003. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 60.
47. J.L. Holechek, **M.G. Thomas**, and C. Bailey. 2002. Effect of grazing intensity on financial returns in the Chihuahuan Desert. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 60.
46. M.D. Garcia, **M.G. Thomas**, and W.R. Parker. 2002. 40-year trends in the Tucumcari Performance bull test. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.55.
45. L.A. Stalker, J.E. Sawyer, **M.G. Thomas**, C. Bailey, D. Wood, and M.K. Petersen. 2002. Effectiveness of undegradable intake protein mixed with mineralized salt as a protein supplement for wintering range cows. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.50.
44. K.L. Shirley, **M.G. Thomas**, D.M. Hallford, L.A. Narro, M.D. Garcia, and J.A. Winder. 2002. Evaluation of pituitary responsiveness to GnRH and GHRH as a predictor of behavioral estrus in heifers. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 47.
43. L.A. Narro, **M.G. Thomas**, G.A. Silver, and D.H. Keisler. 2002. Ontogeny of adiposity, serum leptin, and hypothalamic-pituitary expression of the leptin receptor gene in wethers treated with zeranol. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p. 47.
42. **M.G. Thomas**. 2002. Advances in genetic technology. *NMSU Res. Brf. & Cattle Grow. Short Cor.* p.41-43.
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27. J.L. Holechek, **M. Thomas**, and C. Bailey. Effect of grazing intensity on financial returns in the Chihuahuan Desert. *NMSU Lvstck. Res. Brf. & Cattle Grow. Short Cor.* p. 76
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10. **M.G. Thomas**, C.C. Razor, and L.N. Burcham. 1998. Using EPDs to select breeding Cattle. NMSU Lvstck. Res. Brf. & Cattle Grow. Short Cor. 7-10.
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5. **M.G. Thomas**, K. Bennett-Wimbush, D.H. Keisler, and W.E. Loch. 1997. Tonic secretion of growth hormone differs in prepubertal quarterhorses and ponies with respect to age but not breed. Univ. of MO. Dept. Report:41.
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3. **M.G. Thomas**, B. Bao, and G.L. Williams. 1994. Enhanced ovarian follicular development and hormone production in cows fed supplemental fats. Beef Cattle Res. in Tex. PR 5186: 118-120.
2. **M.G. Thomas**, B. Bao, and G.L. Williams. 1994. Effects of supplemental fats on superovulation rates in heifers. Texas Ag. Exp. Sta. Rep. 94-1:R7-R10.
1. **M.G. Thomas**, B. Bao, and G.L. Williams. 1994. Effects of different supplemental fats on metabolism and reproductive potential in beef cows. Texas Ag. Exp. Sta. Rep. 94-1:R1-R6.

Research and Teaching Funding

Colorado and New Mexico Agricultural Experiment Stations (Total = \$865,000):

Title: Genetic improvement in beef management systems. Co-principle investigator with R.M. Enns and S. Speidel.
Source of funding: USDA-NIFA (Hatch: COL00607A), Salary Support for R.M. Enns and S. Speidel. 2015-2021.

Title: Functional genomic study of high altitude and beef cattle. Principle investigator.
Source of funding: CSU Start-up package for J.E. Rouse Chair, \$540,000, 2012 to 2015.

Title: Functional genomics and beef cattle production. Principle investigator.
Source of funding: USDA-CSREES/NIFA (Hatch 216391), \$25,000/annum = \$125,000; 2008 to 2012.

Title: Improving production efficiency of beef cattle with enhanced understanding of physiology and genetics.
Principle investigator.
Source of funding: USDA-CSREES (Hatch 0108674), \$20,000/annum = \$200,000. 1998-2003 and 2003 to 2008.

Title: Effect of two stocking levels on Chihuahuan Desert forage and cattle production and financial returns. Co-principle investigator with J. Holechek.
Source of funding: USDA-CSREES (Hatch), 1998-2012. Did not receive funding from this project, but responsible for all statistical analyses and cattle production records.

Successful Extramural Efforts: (Total ~ \$5.3 million).

Title: Modeling for genomic, blood, and microbiological markers for liver abscesses in fed beef cattle. (\$300,000 but not counted in my totals as advisory role), 2022-2025.
Source of funding: Foundation for Food and Agriculture Research – International Consortium for Antimicrobial Stewardship in Agriculture (FFAR-ICASA). My role is advisory.

Title: INHERIT validation with CSU Rouse Angus. Co-principle investigator with Drs. R. M. Enns and S. Speidel.
Source of funding: Zoetis \$68,000 for SNP-chip genotyping of 1,200 Angus cattle from Rouse Ranch (2019-2021).

Title: Development of metrics to identify cattle predisposed to feedlot heart failure.
Source of funding: Foundation for Food and Agriculture Research – International Consortium for Antimicrobial Stewardship in Agriculture (FFAR-ICASA) to be awarded 6/1/2021-5/31/2024; \$998,398). Very large team of scientists, feedlot owners and staff, and breeding organizations such as ABS. My role is that of a research Co-Project director and grant administrator.

Title: Genetic improvement of Wagyu cattle: initiation of study of genetic architecture and resource building for genome-assisted breeding.
Source of funding: Brush Creek Ranch – Work Order 1 (2019/2020). \$144,431.

Title: Preparation of samples to be used for discovery of genetic markers to select cattle for reduced susceptibility to pulmonary hypertension (High Mountain Disease).
Source of funding: Battle Creek Angus – Work Order 2 (CSU project 144776 in 2019 (\$5,087) + \$30,000 in direct cost for whole genome sequencing). Total = \$35,087

Title: Functional annotation of the bovine genome. Co-project director.
Source of funding: USDA-NIFA-AFRI, 2018-67015-27500 (\$2.5 million, but not counted in my totals as minor role; January 2018-January 2022),

Title: Opportunity to enhance GeneMax Advantage with fertility trait information from CSU's Beef Improvement Center (Rouse) Angus herd. Principle investigator.
Source of funding: Zoetis \$20,000 for SNP-chip genotyping of 400 Angus calves from Rouse Ranch (2018).

Title: Improving stayability (STAY) in Red Angus cattle with functional genomics. Principle investigator.

Source of funding: Red Angus Foundation Inc. (\$35,000, January 1, 2018 to December 31, 2020 + \$20,000 from CSU-Animal Reproductive Biotechnology Laboratory – Translational Reproductive Biotechnology Program). Co-investigators include: Drs. R.M. Enns, S.E. Speidel, and T.R. Hansen.

Title: Investigation of calcium regulatory processes and their role in a natural large animal model of altitude-associated pulmonary hypertension sensitivity leading to heart failure.

Source of funding: Entelligence Young Investigator Program (mentor of Dr. Stephen Coleman; May 1, 2018 to April 2030, 2019; \$100,000).

Title: Metabolism and inflammation predict cardiopulmonary outcomes in fattening beef cattle.

Principle investigator.

Source of funding: USDA-NIFA (2018-67015-28241; \$499,772, July, 15, 2018 to July 14, 2023).

Title: Influence of varied strategies of high elevation finishing on cardiopulmonary characteristics of Angus steers. Co-principle investigator with Mark Enns and Tim Holt.

Source of funding: Battle Creek Angus (CSU work order #1, Cooperative Agreement 136833-2017; \$51,034).

Title: Genomic Basis for Embryo Mortality. Co-principle investigator with Thomas Hansen and Jennifer Barfield.

Source of funding: Zoetis, (CSU Agreement: TBD-2017; \$189,661.29 + \$60,600 veterinary and dairy farm cost = \$250,261.29).

Title: Border state beef production efficiency in Mexico and United States: genomic improvements of early life fertility in heat tolerant cows. Co-principle investigator with Pablo Luna-Nevarez (Instituto Tecnológico de Sonora) and David Riley (Texas A&M University).

Source of funding: CONACYT (2016-037; \$24,000).

Title: Y-Cross Ranch graduate teaching fellowship of excellence and PhD training involving beef cattle, horses, and western ranching operations.

Source of funding: Y-Cross Ranch CSU Endowment: (\$44,429).

Title: Why do some embryos die, while others live. Co-principle investigator with Thomas Hansen, Ann Hess, and Hana Van Campen.

Source of funding: W3112 CRC (\$25,000 for 2016; \$25,000 for 2017).

Title: Genomic analyses of thermo-tolerance in Holstein dairy cattle managed during summer in Southern Sonora Mexico. Co-principle investigator with P. Luna-Nevarez (Instituto Tecnológico de Sonora) and J.F. Medrano (UC-Davis).

Source of funding: UC-MEXUS-CONACYT (\$25,000, 2016).

Title: Animal Reproduction Biotechnology Laboratory National Needs Fellowship. Co-principle investigator with T.R. Hansen, R. Anthony, J. Bruemmer, C. Clay, E. Carnevale.

Source of funding: USDA-AFRI (\$262,500; 2016-38420-25289).

Title: GENEMAX Advantage validation with CSU Rouse Angus. Co-principle investigator with Drs. R. M. Enns and S. Speidel.

Source of funding: Zoetis \$75,000 for SNP-chip genotyping of 1,000 Angus cattle from Rouse Ranch (2015-2017).

Title: Next generation Red Angus fertility evaluation. Co-principle investigator with Drs. R.M. Enns and S. Speidel.

Source of funding: Red Angus Association of America, \$30,186, 2015-2016.

Title: Implementation of genetic selection for grazing distribution to make cattle grazing in the Western US more Sustainable. Co-principle investigator with D. Bailey of NMSU and Drs. M. Enns and S. Speidel of CSU.

Source of funding: WSARE (\$271,217; CSU component = \$75,000; SW15-015), 2015-2018.

Title: Genomic study of Holstein fertility, Co-principle investigator with Thomas Hansen.

Source of funding: Zoetis, \$60,000 to CSU as a subproject, 2014 to 2015. Project includes \$68,000 direct cost for purchase of Holstein cows for the Bovine Reproductive Services dairy of Dr. Kevin McSweeney, 2014-2015.

Title: Open cow diagnostic. Collaboration with Thomas Hansen.

Source of funding: Zoetis (\$167,076), 2015-2016.

Title: SNP associated to growth, fertility, and first-calf survival traits in Brangus heifers managed under semi-arid extensive conditions in Sonora, MX. Collaboration with Drs. P. Luna and D. Riley.

Source of funding: CONACYT of Mexico and Texas A&M University, \$24,000, 2014-2015.

Title: Development of a genomics database for cattle and other livestock. Co-principle investigator with Dr. Harvey Blackburn of USDA-ARS and Drs. M. Enns and S. Speidel of CSU.

Source of funding: USDA-ARS via an SCA (58-5402-3-011 and 58-3012-0-008), \$65,000, 2013-2014. Expansion I in 2014 with \$50,000, Expansion II in 2015 with \$63,168, Expansion III in 2016 with \$46,000, Expansion IV in 2017 with \$40,000, Expansion V in 2018 with \$54,218, Expansion VI in 2019 with \$60,000. Expansion VII with \$200,218. Expansion VIII with \$72,000. Total = \$650,604.

Title: Integration of genomics into cattle breeding for tolerance to high altitude. Principle investigator.

Source of funding: J. E. Rouse Endowment and Colorado State University, \$540,000, 2012-2015.

Title: Integrated program for bovine respiratory disease complex in beef and dairy cattle. Co-project investigator; coordinator of the teaching program; 21 scientists involved in this coordinated agriculture project (CAP).

Source of funding: USDA-AFRI thru Texas A&M University (2011-68004-30367), \$384,285, 2011-2015.

Title: Genomic variation and physiological response of Holstein dairy cows to heat stress in the Yaqui Valley.

Source of Funding: UC MEXUS-CONACYT (CN-10-441), \$25,000, collaboration with Dr. Pablo Luna-Nevarez of ISON, Obregon, Sonora, 2010-2011.

Title: Improving fertility and global beef production using strategies implementing genomic technologies. Co-principle investigator with Dr. R. Hawken.

Source of funding: Visiting McMaster Fellowship, CSIRO, Queensland Bioscience Precinct, Brisbane, AU, \$9480 AUD; \$11,376 USD, 2011.

Title: Gerald Thomas Chair in Food Production and Natural Resources, Principle investigator, New Mexico State University, 2010-2011.

Source of funding: Gerald Thomas Endowment, \$80,000.

Title: Branch Ranch branded beef project. Co-principle investigator with Jay LillyWhite of NMSU.

Source of funding: Branch Ranch – Natural Beef of New Mexico (i.e., Dan Field Family, Lovington, NM), \$25,000.

Title: Identification of molecular markers to improve fertility in beef cattle. Principle investigator.

Source of funding: USDA-NRI section of Applied Animal Genomics, \$450,000, 2008-35205-18751. Serve as the PI for a collaborative proposal with members of NBCEC (J. Reecy and R. Fernando of Iowa State University, J. Pollak of Cornell University-USDA-ARS-MARC, and B. Weaber of University of Missouri).

Title: Role of SNP in the STAT6 gene in predicting phenotypes of growth and body composition in Brangus cattle. Principle investigator.

Source of Funding: Graduate Research Enhancement Grant (GREG), Office of the Vice – Provost of Research at NMSU, \$18,000 for M.S student Kasey DeAtley for 2007-2008.

Title: Genotype to phenotype (EPD) relationships in Brangus AI sires using commercially marketed DNA tests. Principle investigator.

Source of Funding: Merial-Igenity, Bovigen Solutions, and Metamorphix Inc. (value not reported as genotype costs absorbed within each company).

Title: Genotype to phenotype (EPD) relationships in Brahman steers using commercially marketed DNA tests of Bovigen LLC. Principle investigator.

Source of Funding: Bovigen LLC (value not reported as genotype costs absorbed within each company).

Title: Mini-sabbatical in bovine genomics. Principle investigator.

Source of Funding: USDA-NRI, Applied Animal Genomics Section, \$39,318, 2006-35205-16651.

Title: Evaluation of the association of a 5'UTR-SNP in IGF-I to reproductive traits in the heifers from Rex Ranch. Principle investigator.

Source of Funding: Igenity (Division of Merial-Limited), Merial IGE-021, \$10,000, 2005.

Title: Coordinated planning of field station support in the Jornada Basin, NM. Co-principle investigator.

Source of Funding: NSF-Biological Field Stations and Marine Labs. 0330667 and 6238415. \$25,000, 2005

Title: Supplemental equipment grant for Neuromodulation of the growth hormone axis by appetite-regulating peptides. Co-principle investigator.

Source of Funding: NIH-MBRS-SCORE, GMO8136-28S2, \$38,928, 2002-2003.

Title: Neuromodulation of the growth hormone axis by appetite-regulating peptides. Principle investigator.

Source of Funding: NIH-MBRS-SCORE, GMO8136-26, \$280,000, 2000-2004.

Title: Minority Graduate and Undergraduate Basic Research Program at NMSU. Co-principle investigator.

Source of Funding: NIH-MBRS-RISE, GM61222, Funding for laboratory analyses for two graduate students and one undergraduate student = \$10,000 per annum (\$40,000 total; 2000-2004).

Title: Use of Distance Education to Teach Graduate Level Animal Breeding to Universities in Chihuahua, MX. Co-principle investigator.

Source of Funding: NMSU Mexico Small Grants Program, \$3,000, 2000 and 2001.

Title: Evaluation of physiological challenge as tools for genetic improvement in beef cattle. Principle investigator.

Source of Funding: Samuel Noble Foundation, Ardmore, OK, \$20,000, 1998-2000.

Title: Pit-1 regulation of growth hormone and prolactin synthesis. Principle investigator.

Source of funding: USDA-NRICGP, 95-37206-2119, \$80,000 (~\$10,000 was utilized at NMSU 1997-1999).

Semen and Embryo Donations:

Heart Bar Ranch, 20 doses of NMSU Garrett Manso 7057, (\$725), 2010

Mound Creek Ranch, 30 doses of MC 924 sons, (\$1,200), 2010

Mound Creek Ranch, 10 doses of MC Cool Hand (\$400), 2007

Mound Creek Ranch, 10 doses of MC Right Direction 624R (\$400), 2007

Mound Creek Ranch, 10 doses of MC Ringo (\$400), 2007

Townsend Brangus, 10 doses of Mr Lucky 118 (\$400), 2006.

Mound Creek Ranch and Ovagenix, 6 embryos, MC New Direction x Miss NMSU 629 (\$645), 2005.

Camp Cooley Ranch, 20 dose of Ali of Brinks (\$800), 2005.

Suhn Cattle Company, 20 doses of Burtins Transformer (\$800), 2004

Mound Creek Ranch, 20 doses of MC Newsman and 20 doses of Texas Duke (\$1600), 2004.

TEACHING CONTRIBUTIONS

Academic level	Course No.	Title	Credit hours	Years	# Students per semester	Semester
UnderGrad	CSU ANEQ 328	Foundations in Animal Genetics	3	2013-2022	~140	Spring
Graduate	CSU ANEQ 534	Marker Assisted Selection; Functional Change	1	2014-2021	~5	Spring
UnderGrad	NMSU ANSC 423 ^a	Animal Breeding	3	1997-2011	~40	Fall
UnderGrad	NMSU ANSC 416	Beef Production	3	1998-2011	~40	Spring
Graduate	NMSU ANSC 485 ^b	Animal Breeding, Distance Education Course I	3	1999-2001	4/13	Alternate Spring
Graduate	NMSU MOLB 590	Molecular Biology Seminar	1	1999	17	Spring
Graduate	NMSU ANSC 550 ^b	*Prediction Technologies course II of distance program	3	2000	1-3/10	Alternate Spring, when demanded
Graduate	NMSU ANSC 604	Reproductive Endocrinology, Neuro	1	2000-2010	5-10	Alternate Fall

^a Implemented computer simulation strategy to teach Dairy Cattle Breeding. ^b and ^c were distance education courses with Texas Tech University, University of Arizona, and University of Chihuahua. This program was an effort of WERA1 (Western Region Coordinating committee for Beef Cattle Breeding Research).

Other Teaching Experience:*Colorado State University*

- A. Graduate Seminar for Breeding and Genetics; ANEQ 792b; Spring and Fall 2013, Spring 2015, Spring 2017, Fall, 2018, Spring 2020, and Spring 2022.
- B. Graduate ANEQ 575 guest lecturer; 2012 and 2014
- C. Principles in Equine Genetics; ANEQ 334; 5 weeks of lecture, 2014; 5 lectures 2015
- D. ANEQ 300, Seedstock Management: guest lecture: Selecting cattle for harsh climates; Fall 2012-2016
- E. ANEQ 472, Sheep Systems: guest lecture: genomics and genetic improvement in sheep; Fall 2016

New Mexico State University

- A. Reproductive Physiology, 1/3 of course (Section on Reproductive Management); 2010
- B. Animal Science Senior Seminar; ANSC 402; 21 students; 2000

University of Missouri 1988-1990 and 1995-1997:

- A. Beef Production and Management (Section on Reproductive Management)
- B. Artificial Breeding – Artificial Insemination
- C. Semen and Ova Processing
- D. Sheep Production and Management (Section on Reproductive Management)

Texas A&M University 1990-1992

- A. Physiology of Reproduction
- B. Artificial Breeding – Artificial Insemination

Summary of Graduate Student, Postdoc, and Sabbatical Scientist Training:

Current (A) and former (B) students advised/co-advised in the research program of Dr. Milt Thomas. Note the indications of ethnicity and funding source. Also, to date > 30 undergraduates were exposed to research in this program and Dr. Thomas has also served on > 40 additional graduate student committees.

A. Current Students

Name	Degree Program	Funding Source	Mentorship Role
Roderick Gonzalez	Ph.D.	SENACYT	Co-Advisor
Hamad Saad	Post-doc	JER, CGEL, USDA-NIFA	Co-Advisor

Abbreviations: MBRS = NIH-Minorities in Basic Research and Science; SCORE = NIH-Support of Continuous Research Excellence; RISE = NIH-Research Initiative for Scientific Enhancement; AES = Agricultural Experiment Station; CONACYT = Consejo Nacional de Ciencia y Tecnologia, MX; ITSON = Instituto Tecnológico de Sonora, MX; GREG = Graduate Enhancement Grant sponsored by the Office for the Vice Provost for Research of NMSU; HMMI = Howard Hughes Medical Institute; CGEL = Center for Genetic Evaluation of Livestock; JER = John E. Rouse Endowment, ME-FB = Fulbright; SCA = Specific Cooperative Agreement and Pathways program of USDA-ARS; WSARE = Western Sustainable Agriculture Research and Education program of USDA; NNF = National Needs Fellowship of USDA; SENACYT = Secretaria Nacional de Ciencia, Tecnología e Innovación of Panama; FFAR-ICASA = Foundation for Food and Agriculture Research – International Consortium for Antimicrobial Stewardship in Agriculture

B. Former Mentees

Name	Degree Program	Funding Source	Current Position
Kelley Duggan	M.S.	JER Rouse Endowment	Instructor, Nebraska College of Technical Agriculture
Taylor Zimprich	M.S.	JER Rouse Endowment	Analyst and database technician. National Association of Animal Breeders, Madison, WI
Carolina Gonzalez-Berrios	Ph.D. (co-advisor)	USDA-AFRI NNF	Postdoc, USDA-ARS, Miles City, MT
Kathryn Heffernan	M.S.	Brush Creek Ranch	Ph.D. Student, Department of Animal Sciences, Iowa State University.
Miguel Sanchez	PhD	CONACYT	Postdoc, Zoetis, Kalamazoo, MI
Kaysie Jennings	Ph.D.	JER, Y-Cross	Laboratory Scientist, Transnetyx, Memphis, TN
Natalie Crawford	M.S. and Ph.D.	BRD-CAP/JER	Postdoc, Zoetis, Kalamazoo, MI
Courtney Pierce	M.S.	USDA-WSARE	Data analyst, USDA-APHIS, Fort Collins.
Sajid Tahir	Ph.D.	UQ	Ph.D. Student University of Queensland, Brisbane, AU
Tiago Paim	Ph.D.	Brazilian Government Sandwich	Livestock Extension Specialist, State of Brazilia
Loan Nguyen	Ph.D.	UQ	Ph.D. Student University of Queensland, Brisbane, AU
Beth Krehbiel	M.S.	USDA-ARS	Ph.D. Student, SCA-Pathways-USDA-ARS, Fort Collins, CO
Brent Buckley	Sabbatical	U of Hawaii	Professor and Beef Extension Specialist, University of HI-Manoa, Honolulu
Marina Mortati	PhD	Brazil Sandwich	Assistant Professor, Universidade Federal Rural do Rio de Janeiro, Seropédica
Xi Zeng	PhD	CGEL-JER Endowment	Senior Research Scientist, Zoetis, Kalamazoo, MI
Angela Canovas	Postdoc	JER	Associate Professor, University of Guelph
Ana Hernandez	M.S.	Fulbright	Postdoc, Univ. British Columbia, Vancouver, BC, CA
Rebecca Cockrum	Postdoc	JER	Assistant Professor, Virginia Tech University, Blacksburg

Joe Neary	Ph.D.	Clinical Sciences	Senior Lecturer, Department of Livestock Health and Welfare, University of Liverpool, UK
Kasey DeAtley	M.S.-Ph.D.	GREG-AES	Associate Professor, California State University – Chico
Sunday Peters	Ph.D.	USDA-NRI	Associate Professor, Berry College, Mt. Berry, GA.
Pablo Luna	Ph.D.	ITSON	Professor, ITSON, Obregon, Sonora, MX.
Ashley Garrett	M.S.	AES	Lab tech. Pharmaceutical Product Development, Inc., Austin, TX
Jared Decker	B.S.	Honors College	Associate Professor, University of Missouri, Extension Beef Cattle Breeding and Genetics
Konni Shirley	Ph.D.	RISE	Statistician for the Navajo Nation, Window Rock, AZ
Vivienne Beauchemin	M.S.	RISE	Lab technician, NMSU Microbiology lab
Belal Obeidat	M.S.	AES	Professor, Jordan Univ. Science and Technology
Luis Narro	M.S.	RISE	unknown
Matt Garcia	M.S.	RISE	Assistant Professor, Utah State University
Rene Flores	M.S.	RISE	Research Scientist, Univ. of Arkansas-Little Rock
Rufino Lopez	Ph.D.	CONACYT	Professor, University of Chapingo, Mexico
Cleve Rasor	M.S.	AES	Production agriculture and Insurance Sales, Celina, TX

Abbreviations: MBRS = NIH-Minorities in Basic Research and Science; SCORE = NIH-Support of Continuous Research Excellence; RISE = NIH-Research Initiative for Scientific Enhancement; AES = Agricultural Experiment Station; CONACYT = Consejo Nacional de Ciencia y Tecnologia, MX; ITSON = Instituto Tecnológico de Sonora, MX; GREG = Graduate Enhancement Grant sponsored by the Office for the Vice Provost for Research of NMSU; HMMI = Howard Hughes Medical Institute; CGEL = Center for Genetic Evaluation of Livestock; JER = John E. Rouse Endowment, ME-FB = Fulbright; SCA = Specific Cooperative Agreement and Pathways program of USDA-ARS; WSARE = Western Sustainable Agriculture Research and Education program of USDA, NNF = National Needs Fellowship of USDA; USDA-Agricultural Research Service (ARS).

C. Faculty Mentorship

Name	Faculty Rank	Years
Scott Speidel	Tenure, Assistant to Associate Professor	2014-2019
Jasmine Dillon	Tenure, Assistant to Associate Professor	2019-2022
Catie Cramer	Tenure, Assistant to Associate Professor	2019-2022
Sam Cunningham	Non-Tenure, Assistant to Associate Professor	2019-2022

ADDITIONAL SERVICE

University and College Committees (CSU and TAMU)

Animal Care and Use Committee (ACUC); Texas A&M AgriLife Research (2022-present)
Promotion and Tenure (TAMU-COALS; 2022-present)
Faculty Council; at-large representative of the College of Agricultural Sciences (2013-2015)
Translational Reproductive Biology Focal Group for the Animal Reproductive Biotechnology Laboratory;
Committee Chair (2016-present)

Annual Department Committees (CSU and TAMU):

Beef Improvement Center-Rouse Angus Ranch (2012-2022)
Promotion and Tenure (2012-2022)
Chair Promotion and Tenure (2018-2022)
Graduate Student Review and Research Committee (2012-2017)
Chair of Graduate Student Review and Research Committee (2016-2017)

Annual Department Committees (NMSU):

Campus Farm Operations (Chair from 2005-2011)
Chihuahuan Desert Rangeland Research Center (Chair from 1999-2004; member 1997-2011)
Corona Range and Livestock Research Committee (2000-2011)
Clayton Livestock Research Center (2000-2011)

Note: coordinated NMSU Angus, Brangus, Brahman breeding program; therefore, served on all 3 department cattle / NM Agricultural Experiment Station steering committees.

Recent Notable Committees and Service:

Chair of Policy Coordinating Committee (PCC) for Beef Cattle, National Animal Germplasm Program. 2012-present. Represent the Beef Industry when the species group of Dairy, Small ruminants, swine, poultry, rare breeds, etc. meet and lead the annual discussions at the Beef Improvement Federation.

Member of search committee for Texas A&M AgriLife Extension Beef Specialist, Corpus Christi, November 2022 to present.

Member of search committee for Texas A&M University Assistant Professor for precision mammalian gene editing.

Chair of search committee to hire CSU Livestock Judging Coach, April 2022.

Chair of the Coordinating Committee for the Cattle and Sheep Symposium for the Western Section of the American Society of Animal Sciences. October, 2021

Chair of search committee to hire CSU Director of Equine Science and Elite Seedstock. May, 2021

Ranch to Grill; Coordinating CSU Beef Cattle AES facilities into a supply chain for branded beef. 2019-present

Translational Reproductive Biotechnology (TRB) of CSU's Animal Reproduction and Biotechnology Laboratory (ARBL). Chair, 2017 to 2020

Committee member for search for Assistant Professor of Beef Production and Management in the Department of Animal Science, 2017

M.G. Thomas

Advisory Board member for Genomic Study of Heat Tolerance in Beef Cattle sponsored by USDA-NIFA-AFRI, 2017-2020

Committee member for search of Associate Dean and Director of the Colorado Agriculture Experiment Station, 2016

Committee member for search of Research Associate II for ruminant research and feed intake unit (FIU) management at ARDEC of Colorado State University. 2015

Committee member for search of Assistant to Associate Professor, Colorado Beef Cattle Extension Specialist. 2015

Chair of the Breeding and Genetics Symposium, Western Section of the American Society of Animal Science, Ruidoso, NM, 2015

Technical Advisor, for USDA-AFRI integrated grant titled: paradigm shift: revolutionizing our understanding of antimicrobial resistance ecology through whole genome analysis of microbial communities (\$3 million). CSU; 2014-2017

Breed Improvement (DNA-Technology) Committee for International Brangus Breeders Association, 2004-2014

NMSU-ACES-Action Team, 2009 to 2010. Participate in strategic planning for improving facilities for the College of Agriculture, Consumer, and Environmental Sciences

Selection committee for the Dean and Deputy Director of the NM Agricultural Experiment Station. 2010

American Society of Animal Science Strategic Planning Committee/effort. 2008-2009

Chair for search committee for assistant professor of reproductive physiologist for the Department of Animal and Range Science. 2009. Process led to the hiring of Dr. Ryan Ashley (Ph.D. and Postdoc from Colorado State University)

Chihuahuan Desert Rangeland Research Center committee for Board of Regents Management policy, 1998-2003. Instrumental in developing of public forums and presentations to the Board of Regents for policy to improve management and limit detrimental public access.

International Brangus Breeders Association, Breed Improvement Committee, DNA Technology, 2004 to 2014

American Gelbvieh Association – Selection Index Development committee, 2013

National Center for Genetic Resource Preservation; Beef Species Chair, Policy Coordinating Committee, 2012-present

National Animal Genome program, NRSP8, Chair and Chair-elect, 2013 and 2014

Supervisor of AES staff:

Gail Silver, Research Technician, NMSU, 2001-2011

Todd Edwards, Farm Manager of NMSU Campus Farms, 2005-2011

Calvin Bailey, Foreman of AES-Chihuahuan Desert Rangeland Research Center, 1999-2009

Sean Thomas, Research Associate – Computer Systems, 2012-2015

Ted Manahan, Research Associate – Computer Programming, 2013-2021

Amy Guitreau, Research Associate -computer Programming, 2021-2022

M.G. Thomas

Carlos Serna, Farm Foreman, Texas A&M AgriLife, Beeville (co-supervise), 2022-present
Jason Bosquez, farm worker, Texas A&M AgriLife, Beeville, 2022-present

Coordinating Committee for Beef Cattle Breeding Research and Education Programs for the Western States, 1997-2011.

National Research Special Project (NRSP-8) for Animal Genomics and Land Grant Universities. 2000-2022.

<https://hereford.ac-page.com/csuwebinarrecording>