**Ted H. Friend, Ph.D.***Faculty Fellow and Professor  
Animal Behavior and Wellbeing*

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**I. Institutions attended**

B.S., Cornell University, 1970

M.S., Virginia Polytechnic Institute and State University, 1973

Ph.D., Virginia Polytechnic Institute and State University, 1977

**II. Previous positions and experience**

1970 ‑ 1971: U.S. Navy Reserve, Viet Nam

1971 ‑ 1977: Graduate Research Assistant, Dairy Science Dept., VPI & SU

1977: Special Agent, Virginia Extension Service

1977 ‑ 1983: Assistant Professor, Texas A&M University

1983 ‑ 1992: Associate Professor, Texas A&M University

1992 - Present: Professor, Texas A&M University

2010 - Present: Texas AgriLife Research Faculty Fellow

**III. Interests and goals**  
  
 Dr. Friend’s interests are in the fields of animal wellbeing and applied ethology. The undergraduate course and graduate courses he teaches at A&M emphasize animal behavior as a means of understanding the nature (or “ethos”) of animals used by people and to relate their behavior to their management and wellbeing.

Dr. Friend’s undergraduate course, ANSC 310, Behavior and Management of Domestic Animals, has two hands-on laboratory sections, emphasizes learning concepts, although factual knowledge is also stressed. The course has a significant research, written and communication components. There is a progression in exercises in the class and laboratories that lead to the term project. Participation of all students in handling animals, while carrying out exercises that illustrate important aspects of behavior, is the major goal of the laboratories.

Dr. Friend’s graduate course, Animal Science 610, Applied Animal Ethology, is oriented towards review and evaluation of current research, points of controversy and the importance of behavior in experimentation and management of species important to agriculture. The goal of the course is to stimulate students to consider the implications of animal behavior as it may relate to future researchers, teachers, ranchers, or industry workers. Field trips are also a major part of this course.

Dr. Friend’s research program involves both applied and basic research projects. He and his students have published research papers on beef cattle, calves, dairy cattle, horses, pigs, sheep, goats, elephants, dogs and tigers. Most applied studies have been related to improving animal welfare and reducing stress. This usually involves determining how animals respond to various conditions (ex. confinement, isolation, exercise, transportation, etc.) and then modifying those conditions to reduce stress. His lab has also been conducting some studies on aspects of animal cognition.

**IV. Recent publications**

Friend, T. H., J. A. Haberman and W. R. Binion. 2014. Effect of four different reflective barriers on black-globe temperatures in calf hutches. Int. J. Biometeorology. Doi: 10.1007/s00484-014-0810-z.

Binion, W. R., T. H. Friend and G. A. Holub. 2014. Usefulness of an aluminized polyester film for reducing heat in polyethylene calf hutches. Int. J. Biometeorology. Doi: 10.1007/s00484-013-0783-3.

Carter, B. H., S. M. Garey, T. H. Friend, J. A. Sawyer, M. B. Alexander, and M. A. Tomaszewski. 2013. Efficacy of reflective insulation in reducing heat stress on dairy calves housed in polyethylene calf hutches. Int. J. Biometeorology 58:51-59. Doi: 10.10007/s00484-012-0623-x.

Binion, W. R., T.H. Friend, J.E. Sawyer, P.K. Riggs, K.J. Kochan and J.T. Jaques. 2013. Effects of weaning, repeated handling and transport on immune- and inflammatory genes and stress hormones. J. Animal Sci. 91, E Suppl 2.

Carter, M. J., T. H. Friend, J. Coverdale, S. M. Garey, A. L. Adams, and C. L. Terrill. 2012. A comparison of two conventional horse feeders with the Pre-Vent feeder. J. Equine Vet Sci. 32:252-255. Doi: 10.1016/j.jevs.2011.09.073.

Farrow, R. L., T. S. Edrington, B. Carter, T. H. Friend, T. R. Callaway, R. C. Anderson and D. J. Nisbet. 2011. Influence of winter and summer hutch coverings on fecal shedding of pathogenic bacteria in dairy calves. Agr. Food and Analytical Bacteriology. 1:98-104.

Alexander, M. B., T. Friend and L. Haug. 2011. Obedience training effects on search dog performance. Appl. Anim. Behav. Sci. 132:152-159. Doi: 10.1016/j.applanim.2011.04.008.

Garey, S. M., T. H. Friend, D. H. Sigler and L. R. Berghman. 2010. The effects of transport in loose groups vs. individual stalls on glucocorticosteroids and DHEA in yearling horses. J. Equine Vet. Sci. 30:696-700. Doi: 10.1016/j.jevs.2010.11.003.

Nevill, C. H., T. H. Friend and A. G. Windom. 2010. An evaluation of exercise pen usage by circus tigers (*Panthera tigris tigris*). J. Applied Anim. Welfare Sci. 13:164-173. Doi: 10.1080/10888700903583459.

Friend, T. H. 2009. Transportation of Horses. In: N. E. Robinson. Current Therapy in Equine Medicine. 6th edition. Saunders, New York. P 119-123.

Calabrese, R, and T. H. Friend. 2009. Effects of density and rest stops on movement rates of unrestrained horses during transport. J. Equine Vet. Sci. 29:782-785. Doi: 10.1016/j.jevs.2009.10.005.

Bingham, G.M., T. H. Friend, P. A. Lancaster, and G. E. Carstens. 2009. Relationship between feeding behavior and residual feed intake in growing Brangus heifers. J. Anim. Sci. 87:2685–2689. Doi:10.2527/jas.2009-1851.

#### Edrington, T. S., B. H. Carter, T. H. Friend, G. R. Hagevoort, T. L. Poole, T. R. Callaway, R. C. Anderson and D. J. Nisbet. 2009. Influence of sprinklers, used to alleviate heat stress, on fecal shedding and antimicrobial susceptibility of pathogenic bacteria in lactating dairy cattle. Letters in Appl. Micro. 48:738-743. Doi: 10.1111/j.1472-765x.2009.02603.

Krawczel, P. D., T. H. Friend and G. S. Archer. 2008. Behavior of lambs in rest pens during long-distance transport. J. Applied Anim. Welfare Sci. 11:337-345. Doi: 10.1080/10888700802329996.

#### Dunkley, C. S., T. H. Friend, J. L. McReynolds, C. L. Woodward, W. K. Kim, K.D. Dunkley, L. F. Kubena, D. J. Nisbet and S. C Ricke. 2008. Behavioral responses of laying hens to different alfalfa-layer ration combinations fed during molting. J. Poultry Sci. 87:815-822. Doi:10.3382/ps.2006-00385.

Dunkley, C. S., T. H. Friend, J. L. McReynolds, W. K. Kim, K.D. Dunkley, L. F. Kubena, D. J. Nisbet and S. C Ricke. 2008. Behavior of laying hens on alfalfa crumble molt diets. J. Poultry Sci. 87:1005-1011. Doi:10.3382/ps.2006-00386.

Archer, G. S., T. H. Friend, D. Caldwell, P. D. Krawczel, C. M. Iacono, H. Keen and T. Martin. 2008A. The impact of feeding several components of the seaweed *Ascophyllum nodosum* on transported lambs. Anim. Feed Sci. and Tech.140:258-271.

Iacono, C. M., T. H. Friend, H. Keen, T. Martin, and P. Krawczel. 2007. Effects of density and water availability on the behavior, physiology, and weight loss of slaughter horses during transport. J. Equine Vet. Sci. 27:355-361.

Iacono, C. M., T. H. Friend, R. D. Johnson, P. D. Krawczel and G. S. Archer. 2007. A preliminary study on the utilization of an onboard watering system by horses during commercial transport. Appl. Anim. Behav. Sci. 105:227-231.

Krawczel, P. D., T. H. Friend, D. J. Caldwell, G. Archer and K. Ameiss. 2007. Effects of continuous versus intermittent transport on plasma constituents and antibody response of lambs. J. Anim. Sci. 85:468-476.

Archer, G. S., T. H. Friend, D. Caldwell, K. Ameiss and P. D. Krawczel. 2007. Effect of the seaweed Ascophyllum nodosum on lambs during forced walking and transport. J. Anim. Sci. 85:225-232.