

David H. Ley, DVM, PhD

Professor, Poultry Health Management
Department of Population Health and Pathobiology
College of Veterinary Medicine, North Carolina State University
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EDUCATION

PhD - Microbiology, University of California, Davis, 1982. Dissertation: Pathogenesis of infectious bursal disease virus in specific pathogen free chickens. Major Professor: Dr. Richard Yamamoto.

DVM - University of California, Davis, 1982.

MA - Microbiology, University of California, Davis, 1976.

BS - Biological Sciences, University of California, Irvine, 1971.

SPECIALTY BOARD CERTIFICATIONS

American College of Poultry Veterinarians, 1992.

American College of Veterinary Microbiologists, 1987.

EMERGENCY PREPAREDNESS: TRAINING, CERTIFICATIONS, AFFILIATIONS

- Hazardous Materials Awareness Class, North Carolina Division of Emergency Management, 11Mar06.
- Veterinary Response Corps Certificate of Training, North Carolina Department of Agriculture & Consumer Services, Emergency Programs Division, 11Mar06.
- Incident Command System (ICS) 100 Training, USDA, 3May06.
- Incident Command System (ICS) 200 Training, USDA, 18May06.
- National Incident Management System (NIMS) an Introduction IS-700 Independent Study Course, Emergency Management Institute, National Emergency Training Center, 24May06.
- American College of Veterinary Microbiologists, Biosecurity Task Force, 19May06.
- North Carolina Veterinary Response Corps, North Carolina Department of Agriculture & Consumer Services, 30Aug06.
- National Turkey Federation Avian Influenza Scientific Advisory Board, Nov06.
- Depopulation Strike Team Training, North Carolina Department of Agriculture & Consumer Services, Emergency Programs Division. Raleigh, NC, 30 Mar 2007
- Poultry FAD Awareness for Industry Veterinarians, USDA-APHIS. Nashville, TN, 17-19 Apr 2007.

HONORS/AWARDS

Class of 2004 Faculty Teaching Award. 2003 NCSU-CVM Awards Banquet, May 1 2003, Raleigh, NC.

Nominated for 2000-2001 NC State University Alumni Outstanding Research Award.

Recipient of a congratulatory resolution from the National Poultry Improvement Plan, 2000.

Best Poster, AVMA/AAAP Annual Meeting, 1996.

Best Poster, AVMA/AAAP Annual Meeting, 1995.

Phi Zeta Honor Society of Veterinary Medicine: Member Elect, 1989.

United States Department of Agriculture Animal Health Science Research Advisory Board: Nominee, 1986.

Achievement Rewards for College Scientists Foundation: Scholarship, 1979.

Pacific Egg and Poultry Association: Education Scholarship, 1978.

University of California, Davis: University Fellowship Alternate, 1978.

University of California, Davis: Graduate Research Award, 1978.

University of California, Davis: Jastro-Shields Research Scholarship, 1977.

Phi Kappa Phi National Honor Society: Member Elect, 1976.

University of California, Irvine: Graduated with Honors, 1971.

National Science Foundation: Summer Research Fellowship, University of California, Irvine, 1971.

PROFESSIONAL EXPERIENCE

- 1997-present Professor. Department of Population Health and Pathobiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC.
- 6/93 to 4/94 Visiting Research Fellow, University of Melbourne Department of Veterinary Science.
- 1989-1997 Associate Professor. Department of Food Animal and Equine Medicine, College of Veterinary Medicine, North Carolina State University, Raleigh, NC.
- 1984-1989 Assistant Professor. Department of Food Animal and Equine Medicine, College of Veterinary Medicine, North Carolina State University, Raleigh, NC.
- 1983-1984 Avian Medicine Resident. School of Veterinary Medicine, University of California, Davis.
- 1980-1981 Staff Research Associate I. Department of Epidemiology and Preventive Medicine, School of Veterinary Medicine, University of California, Davis.
- 1976-1978 Laboratory Assistant. Veterinary Extension and Department of Epidemiology and Preventive Medicine, University of California, Davis.
- 1975-1976 Laboratory Assistant. Veterinary Extension, University of California, Davis.

TEACHING EXPERIENCE

North Carolina State University:

Veterinary Curriculum

- Herd and Flock Health (VMF 974), co-instructor, 1983-2000.
- Elective in Poultry Medicine (VMP 982), co-instructor.
- Avian and Swine Diseases (VMP 964), course leader and instructor, 1984-present.
- Advances in Poultry Health Research and Communication (VMF 992B, Section 002, Fall Semester – 2 wk Selective), course leader and instructor, 1999-2005.
- Clinical Microbiology (VMP 977) 4th yr. students, required block, 5-7 students each block. 1-2 hour discussion and laboratory demonstration on mycoplasma, 2007- present.
- Health Maintenance and Animal Production III – Poultry (VMP 956, Spring TAU elective, 3rd yr. students, 20 students. 2-3 hour discussion and necropsy experience on avian mycoplasma sampling and diagnostics, 2007 – present.

Post-graduate training

- Associate member NCSU Graduate Faculty, 1984-96.
- Advisory committee co-chair for S. Mason, PhD candidate, 1984-87.
- Advisory committee chair for R. Dingfelder, MS thesis: Experimental infection of turkeys with atypical *Mycoplasma gallisepticum*, 1988.
- Advisory committee member for D. Carver, PhD thesis: Risk factors associated with early poult mortality, 1992.
- Full member NCSU Graduate Faculty, 1996-present.
- Member NCSU Biotechnology Faculty, 1999-present.
- Member NCSU Genomic Sciences Faculty, 2000-present.
- Member NCSU Center for Comparative Medicine and Translational Research, 2005-present.
- Major advisor for R. Pherigo, PhD candidate, 1996-97.
- Major advisor for Somsak Pakpinyo, PhD candidate, 1997- 2002. PhD thesis: Role of enteropathogenic *Escherichia coli* and turkey coronavirus in severe intestinal disease of young turkeys (poult enteritis-mortality syndrome).
- Supervised Research (CBS 893), course leader and instructor.
- Poultry Health Management Seminar/Rounds (CBS 801), course leader and instructor, 1999-2001.

Post-DVM training

Program coordinator, advisory committee chair, and advisor for Poultry Medicine Interns and Residents*:

F. Dufour, 1984-85	N. Primm, 1990-91	M. Garcia, 1998-99
D. Ritter, 1984-85	M. Cabel, 1990-91	V. Dao*, 1999-01
D. Rives, 1985-86	S. Heins, 1991-92	B. Sanei*, 2000-02
J. Smith, 1985-86	D. Hermes, 1991-92	N. Reimers*, 2001-03
A. Bermudez, 1986-87	A. McRee, 1992-93	L. Brundige*, 2002-04
H. Cervantes, 1986-87	S. Breeding, 1992-93	M. Alfonso*, 2003-05
D. Grieve, 1987-88	B. Woo-Ming., 1994-95	R. Monleon*, 2004-06
J. Schaeffer, 1987-88	A. Davis Knust, 1994-95	C. Osorio*, 2005-07
S. Davis, 1988-89	G. Hurlock, 1996-97	E. Vivas*, 2006-07
G. Boggan, 1988-89	K. Scott, 1996-97	
A. Miles, 1989-90	L. Ivy, 1997-98	
S. Clark, 1989-90	C. Philippe, 1997-98	

University of California, Davis:

- Fundamentals of Immunology Laboratory: teaching assistant.
- Immunology: teaching assistant.
- Veterinary Bacteriology and Mycology: teaching assistant.
- Viral Pathogens of Animals: teaching assistant.

RESEARCH GRANTS FUNDED

1. Ley DH. Enzyme-linked immunosorbent assay (ELISA) for measuring antibodies in chickens infected with infectious bronchitis virus. I. Evaluation of serotype specificity for Mass-41 and Ark-99 strains. CVM Competitive Research Funds, July 1984 to June 1986, \$40,135.
2. Ley DH and SJ Mason. Transmissibility of *Mycoplasma gallisepticum* from sero-positive chickens to commercial turkeys. North Carolina Agricultural Research Service, Jan. 1985 to Sept. 1986, \$15,160.
3. Ley DH and JE Smallwood. A xeroradiographic study of turkey embryo development within the egg. CVM Competitive Research Funds, July 1985 to June 1986, \$3,375.
4. Levy M, DH Ley and HJ Barnes. Experimental cryptosporidiosis in chickens: effects on production and interaction with infectious bursal disease. CVM Competitive Research Funds, July 1985 to June 1986, \$9,045.
5. Guy J, M Levy, DH Ley and H. J. Barnes. Quail enteritis: experimental reproduction of the disease. CVM Competitive Research Funds, July 1985 to June 1986, \$4,050.
6. Levy MG, RA Argenzio, DH Ley and HJ Barnes. The bobwhite quail (*Colinus virginianus*) as a model for the study of pathogenic mechanisms in acute cryptosporidiosis. NIH Core Center for Diarrheal Diseases, April 1986 to April 1987, \$9,995.
7. Wages DP, HJ Barnes, DH Ley and J Guy. Efficacy of vaccination in North Carolina turkeys for hemorrhagic enteritis. CVM State Competitive Research Funds, July 1986 to June 1987, \$16,900.
8. Guy JS, MG Levy, DH Ley and HJ Barnes. Interaction of *Cryptosporidium* and reovirus in the pathogenesis of avian enteritis. CVM Competitive Research Funds, July 1986 to June 1987, \$7,500.

9. Flammer K, DH Ley and D Wages. A comparison of amakacin pharmacology in birds and establishment of pharmacologically sound dosage regimens. CVM Competitive Research Funds, July 1986 to June 1987, \$5,925.
10. Ley DH, JM McLaren, HJ Barnes and P Hu. Characterization of atypical *Mycoplasma gallisepticum* isolates from North Carolina commercial turkeys. CVM Competitive Research Funds, July 1986 to June 1987, \$16,000.
11. Ley DH and JM McLaren. Investigation of *Mycoplasma gallisepticum* transmission in sero-positive, culture negative fowl. North Carolina Agricultural Research Service, November 1986 to September 1987, \$11,421.
12. Levy MG, RA Argenzio, DH Ley and HJ Barnes. The bobwhite quail (*Colinus virginianus*) as a model for the study of pathogenic mechanisms in acute cryptosporidiosis. NIH Core Center for Diarrheal Diseases, 1987-88, \$8,000.
13. Levy MG and DH Ley. Effects of Stenorol (halofuginone) on experimental cryptosporidiosis in the chicken. Hoechst-Roussel Agri-Vet Co., 1987-88, \$5,140.
14. Ley DH, M Ficken and HJ Barnes. Characterization of atypical *Mycoplasma gallisepticum* isolates from North Carolina commercial turkeys. CVM Competitive Research Funds, continuation, July 1987 to June 1988, \$11,000.
15. Ley DH and MA McBride. *Mycoplasma gallisepticum* (MG) serology: determination by immunoblot analysis of MG proteins immunogenic in turkeys. North Carolina Agricultural Research Service, 1988-89, \$14,420.
16. Grieve DB, MD Ficken, H. Barnes, DH Ley and DP Wages. Comparison of two systems of management for commercial turkey flocks, and the development of a health surveillance program for commercial turkey flocks. FAE VFPP Avian Medicine Intern Research Project, 1987-88, \$1,666.
17. Ley DH and MAT McBride. Development of *Mycoplasma gallisepticum* species- and F-strain specific monoclonal antibodies. CVM Competitive Research Funds, 1988-90, \$22,500.
18. Guy JS, H J Barnes and DH Ley. Characterization of an avian adenovirus associated as a cause of reproductive failure in turkeys. CVM Competitive Research Funds, 1988-89, \$8,100.
19. Rives DV and DH Ley. Comparison of antibodies against infectious bronchitis, Newcastle disease, infectious bursal disease, and reovirus in broiler breeder hens, egg yolk, and broiler chicks using a commercially available enzyme-linked immunosorbent assay (ELISA) system. Kirkegaard and Perry Laboratories, Inc., May to December, 1988, \$4,033.
20. Ley DH and K Flammer. Evaluation of an amplified enzyme-linked immunoassay system for the detection of *Chlamydia psittaci* in avian fecal samples. CVM Competitive Clinical Research Funds, 1988-89, \$1,000.
21. Wages DP, HJ Barnes, DH Ley and JS Guy. Infectious lameness and green liver discoloration in turkeys. CVM Competitive Clinical Research Funds, \$1,000; 1988-89.
22. Ley DH and AP Avakian. *Mycoplasma gallisepticum* (MG) serology: determination by immunoblot analysis of MG proteins immunogenic in turkeys. North Carolina Agricultural Research Service, 1989-90, \$7,885.

23. Ley DH, K Flammer and P Cowen. A new test for the diagnosis of chlamydiosis, amplified enzyme-linked immunosorbant assay (ELISA), compared with established tests: cell culture and latex agglutination, Association of Avian Veterinarians, 1989-91, \$6,740.
24. Ley DH. Comparison of *Mycoplasma synoviae* isolates from an outbreak in North Carolina turkeys by SDS-PAGE and restriction endonuclease analyses. CVM Competitive Research Funds, 1989-90, \$7,096 (returned due to alternate funding).
25. Ley DH. Comparison of *Mycoplasma synoviae* isolates from an outbreak in North Carolina turkeys by SDS-PAGE and restriction endonuclease analyses. Solvay Animal Health, 1989-90, \$7,096.
26. Ley DH. Investigation of *Mycoplasma gallisepticum* seropositive culture negative broiler breeders. FAE Clinical Research Funds, 1989-90, \$2,016.
27. Ley DH, A Miles, MD Ficken, JM Guy, MG Levy and TM Gerig. Experimental infection of turkeys with enterovirus and cryptosporidium. FAE Clinical Research Funds, 1989-90, \$2,085.
28. Barnes HJ, DH Ley and AP Avakian. Control of experimental *Mycoplasma gallisepticum* infection in broiler chicks. I. Model development, infection with the R strain. Pfizer, Inc., 1990, \$6,400.
29. Barnes HJ, DH Ley and AP Avakian. Control of experimental *Mycoplasma gallisepticum* infection in broiler chicks. II. Infection with North American field strain K2. Pfizer, Inc., 1990, \$6,700.
30. Barnes HJ, DH Ley and AP Avakian. Control of experimental *Mycoplasma gallisepticum* infection in broiler chicks. III. Experimental challenge of day-old broiler chicks with South American strain BRAZIL P8. Pfizer, Inc., 1990, \$6,520.
31. Barnes HJ, DH Ley and AP Avakian. Control of experimental *Mycoplasma gallisepticum* infection in broiler chicks. IV. Experimental challenge of day-old broiler chicks with South American strain BRAZIL P3. Pfizer, Inc., 1990, \$6,600.
32. Barnes HJ, DH Ley and AP Avakian. Control of experimental *Mycoplasma gallisepticum* infection in broiler chicks. V. Experimental challenge of day-old broiler chicks with South American strain BRAZIL L8. Pfizer, Inc., 1990, \$6,680.
33. Avakian AP and DH.Ley. Production of reference reagents for diagnosis of mycoplasmal diseases in poultry. North Carolina Poultry Federation, 1990-92, \$5,000.
34. Avakian AP and DH Ley. Identification and purification of *Mycoplasma gallisepticum* proteins that elicit protective immunity in the chicken respiratory tract. Southeastern Poultry and Egg Association, 1990-92, \$17,441.
35. Ley DH and AP Avakian. Identification and characterization of *Mycoplasma gallisepticum* adhesins. CVM Competitive Research Funds, 1990-92, \$24,950.
36. Avakian AP and DH Ley. Production of monoclonal antibodies to *Mycoplasma synoviae*. CVM Competitive Research Funds, 1991-92, \$6,700.
37. Avakian AP and DH Ley. Production of monoclonal antibodies to *Mycoplasma gallisepticum*. North Carolina Poultry Federation, 1991-92, \$3,000.
38. Avakian AP, DH Ley and MD Ficken. Investigations of turkey breeder flocks sero-positive and culture negative for *Mycoplasma synoviae*. Cuddy Farms, Inc., 1991-92, \$9,995.

39. Barnes HJ, DH Ley and AP Avakian. Development of an induced *Mycoplasma synoviae* respiratory disease model. Pfizer, Inc., Oct. 1991 - Dec. 1992, \$9,400.
40. Barnes H J, DH Ley and AP Avakian. Efficacy of tylosin for experimental *Mycoplasma synoviae* infection. Pfizer, Inc., Oct. 1991 - Dec. 1992, \$9,200.
41. Avakian AP, DH Ley, MD Ficken and D Weinstock. Development of a subunit vaccine for *Mycoplasma gallisepticum* using immunostimulating complexes (ISCOMs) containing purified *M. gallisepticum* proteins. Southeastern Poultry and Egg Association, 1992-95, \$16,590.
42. Ley DH and P Orndorff. Cloning *Mycoplasma synoviae* genes encoding immunogenic integral membrane proteins and use of recombinant proteins as ELISA antigen. NCSU-CVM Competitive Grants Program, 1 July 1994 to 30 June 1996, \$24,904.
43. Wages DP, DH Ley and E Berkhoff. Correlation of *Mycoplasma synoviae* infected broiler breeder flocks by serology, culture, and the polymerase chain reaction. NCSU-CVM Competitive Grants Program, 1 July 1994 to 30 June 1995, \$18,650.
44. Ley DH, HJ Barnes and A Miles. Transmissibility of live *Mycoplasma gallisepticum* vaccine (Mycovac L) from vaccinated layer pullets to unvaccinated layer pullets, meat turkeys, breeder turkeys, and broiler breeders. Select Laboratories, Inc., Nov. 1994 to 31 Oct. 1995, \$14,414.
45. Ley DH, HJ Barnes and A Miles. Transmissibility of live *Mycoplasma gallisepticum* vaccine (ts-11) from vaccinated layer pullets to unvaccinated layer pullets, meat turkeys, breeder turkeys, and broiler breeders. Intervet, Inc., Nov. 1994 to 31 Oct. 1995, \$14,414.
46. Barnes HJ and DH Ley. Role of *Mycoplasma iowae* in leg deformities of turkey poults. NCSU-CVM Competitive Clinical Research Program, 1994-95, \$2,000.
47. Ley DH. Development of a database for *Mycoplasma gallisepticum* strain identification by random amplified polymorphic DNA (RAPD) analysis. US Poultry and Egg Association. 1996-97, \$18,425.
48. Ley DH. Development of a database for avian *Mycoplasma* spp. strain identification by random amplified polymorphic DNA (RAPD) analysis. USDA (CSRS) Northeast Regional Project entitled Epidemiology and Control of Emerging Strains of Poultry Respiratory Disease Agents. 1 OCT 96 - 30 SEP 2001.
49. Ley DH. Serological response in chickens following vaccination with Mycovac-L (6/85 strain of *Mycoplasma gallisepticum*). Intervet, Inc., 1 SEP 96 - 31 OCT 97, \$8,844.
50. Dohms J and J Gelb et al., WW Saylor (Administrative Advisor). Development of a database for avian *Mycoplasma* spp. strain identification by random amplified polymorphic DNA (RAPD) analysis. USDA (CSRS) Northeast Regional Project NE-138 entitled Epidemiology and Control of Emerging Strains of Poultry Respiratory Disease Agents. October 1, 1996 through September 30, 2001. Ley DH is a participant and technical committee member, but receives no direct funds to support this activity. The NCSU-CVM research office provides travel funds for Dr. Ley to attend the annual meeting of the technical committee.
51. Ley DH and SJ Geary. Occurrence and distribution of *Mycoplasma gallisepticum* escape variant phenotypes resulting from vaccination of chickens. US Poultry and Egg Association, 1998-2000, \$18,760.
52. Vaillancourt JP, HJ Barnes and JS Guy. Mobilizing national resources to combat emerging food animal diseases using poult enteritis mortality syndrome as a model. Subcontract directors: T Brown, D Reynolds and M Saif. Participants: D Carver, DH Ley, D Wages, T Vukina and M Stringham. USDA Fund for Rural America, 1998-2000, \$450,000.

53. Vaillancourt JP, DH Ley, HJ Barnes and D Wages. Establishment of a communication system and multimedia development for emerging poultry diseases. Poult Enteritis Mortality Syndrome Task Force, 1998-2000, \$50,000.
54. Ley DH. Teaching flock health management online. NCSU-CVM Development of Online Course Material, 1998-99, \$5,000.
55. Ley DH, Barnes HJ. Characterization of avian mycoplasma field isolates by DNA fingerprinting and assessment of pathogenicity for poultry. CVM Competitive Research Grant, 1999 to 2001, \$24,294.
56. Osegueda L, Ley DH, Vaillancourt JP, Carver D. Development and distribution of a poultry health database: model digital library for teaching and extension. NCSU University Extension Competitive Grant, July 1, 2000 to June 30, 2001, \$12,000.
57. Guy JS, Ley DH, Altier C. Investigation of the role of diarrheagenic *Escherichia coli* in poult enteritis-mortality syndrome. CVM Competitive Grant, July 1, 2000 to June 30, 2001, \$12,152.
58. Vaillancourt JP, Ley DH, Carver D. Epidemiological investigation of *Mycoplasma gallisepticum* outbreaks in North Carolina. US Poultry and Egg Association, July 1, 2000 to June 30, 2001; \$17,312.
59. AA Dhondt. Dynamics of an emerging pathogen in an introduced host. National Science Foundation, October 15, 2000 to October 14, 2005, \$2,371,007; Ley DH (sub-contractor) \$109,740.
60. Ley DH, Vaillancourt J-P, Barnes HJ, Osegueda L. Implementation of a poultry health digital library. CVM Grants for the Development of Network-Based Information, June 1 2001 to May 30, 2002, \$7246.
61. Vaillancourt JP, Grimes J, Wineland M, Watson W, Stringham M, Altier C, Gebreyes W, Ley D, Barnes J, Miles A, Wages D, Kathariou S, Ryser E, Willis W, Worku M. Biosecurity and diversity of foodborne pathogen populations on poultry farms. National Research Initiative Competitive Grants Program, Cooperative State Research Education and Extension Service, USDA, January 2002 to December 2004; \$599,952.
62. Ley DH, Vaillancourt J-P, Barnes HJ, Osegueda L. Implementation of a poultry health digital library (continuation). CVM Teaching Innovation Grant, Nov 4 2002 to Nov 3, 2003; \$10,000.
63. Ley DH, Vaillancourt J-P, Barnes HJ, Osegueda L. Implementation of a poultry health digital library (continuation). CVM Teaching Innovation Grant, Nov 5, 2003 to Nov 15, 2004; \$5,000.
64. Ley DH. Poster on Respiratory Diseases of Chickens. Fort Dodge Animal Health, May 1, 2004 to April 30, 2005; \$1,725.
65. Ley DH. Differentiation of *Mycoplasma gallisepticum* strains using amplified fragment length polymorphism (AFLP). NCSU CVM Competitive Grants Program. \$7446, 2005-06. Approved, funds pending State budget.
66. Ley DH. Genotyping *Mycoplasma gallisepticum* by amplified fragment length polymorphism (AFLP) and gene-targeted sequencing. CVM USDA Formula Fund Grant, July 1, 2006 to June 30, 2007; \$9,946.
67. Dhondt AA, Cooch E, Hochachka W, Kollias G, Lovette I, Dobson A, Ley D. Community dynamics of an emergent pathogen: intrinsic versus extrinsic mechanisms. Cornell University (subcontract), National Science Foundation (primary), 1 Sep 06 to 31 Aug 11. Total \$2,499,886 (direct + indirect); Ley subcontract \$60,503 (direct + indirect).
68. Geary S, Gorton TS, Ley DH. Complete genomic characterization of *Mycoplasma gallisepticum* isolates from a 12 year epizootic in house finches: Evolution of a pathogen. University of Connecticut

(subcontract), National Science Foundation (primary) 09/01/2007 to 08/31/2010. Total \$1,366,579; Ley subcontract \$166,633. *Submitted March 2007.*

PUBLICATIONS: refereed journals

1. Ley DH, R Yamamoto and AA Bickford. Immune-complex involvement in the pathogenesis of infectious bursal disease virus in chickens. *Avian Dis.* 23:219-224. 1979.
2. Ley DH, N Storm, AA Bickford and R Yamamoto. An infectious bursal disease virus outbreak in 14- and 15-week-old chickens. *Avian Dis.* 23:235-240. 1979.
3. Ley DH, R Yamamoto and AA Bickford. The pathogenesis of infectious bursal disease: serologic, histopathologic, and clinical chemical observations. *Avian Dis.* 27:1060-1085. 1983.
4. Ley DH. Nitrite poisoning in herring gulls (*Larus argentatus*) and ring-billed gulls (*Larus delawarensis*). *J. Wildl. Dis.* 22:381-384. 1986.
5. Ritter GD, DH Ley, M Levy, J Guy and HJ Barnes. Intestinal cryptosporidiosis and reovirus isolation from bobwhite quail (*Colinus virginianus*) with enteritis. *Avian Dis.* 30:603-608. 1986.
6. Ley DH, RE Morris, JE Smallwood and MR Loomis. Mortality of chicks and decreased fertility and hatchability of eggs from a captive breeding pair of ostriches. *J. Amer. Vet. Med. Assoc.* 189:1124-1126. 1986.
7. Guy JS, MG Levy, DH Ley, HJ Barnes and TM Gerig. Experimental reproduction of enteritis in bobwhite quail (*Colinus virginianus*) with *Cryptosporidium* and reovirus. *Avian Dis.* 31:713-722. 1987.
8. Ley DH, MG Levy, L Hunter, W Corbett and HJ Barnes. Cryptosporidia-positive rates of avian necropsy accessions determined by examinations of auramine O-stained fecal smears. *Avian Dis.* 32:108-113. 1988.
9. Cervantes HM, LL Munger, DH Ley and MD Ficken. Staphylococcal-induced gangrenous dermatitis in broilers. *Avian Dis.* 32:140-142. 1988.
10. Guy JS, MG Levy, DH Ley, HJ Barnes and TM Gerig. Interaction of reovirus and *Cryptosporidium baileyi* in experimentally infected chickens. *Avian Dis.* 32:381-390. 1988.
11. Bermudez AJ, DH Ley, MG Levy, MD Ficken, JS Guy and TM Gerig. Intestinal and bursal cryptosporidiosis in turkeys following inoculation with *Cryptosporidium* sp. isolated from commercial poults. *Avian Dis.* 32:445-450. 1988.
12. Levy MG, DH Ley, HJ Barnes, TM Gerig and WT Corbett. Experimental cryptosporidiosis and infectious bursal disease virus infection of specific-pathogen-free chickens. *Avian Dis.* 32:803-811. 1988.
13. Ley DH, MD Ficken, DT Cobb and RL Witter. Histomoniasis and reticuloendotheliosis in a wild turkey (*Meleagris gallopavo*) in North Carolina. *J. Wildl. Dis.* 22:262-265. 1989.
14. Avakian AP, SH Kleven and DH Ley. Comparison of *Mycoplasma gallisepticum* strains and identification of integral membrane proteins with Triton X-114 by immunoblotting. *Vet. Micro.* 29:319-328, 1991.
15. Dingfelder RS, DH Ley, JM McLaren and C Brownie. Experimental infection of turkeys with *Mycoplasma gallisepticum* of low virulence, transmissibility, and immunogenicity. *Avian Dis.* 35:910-919, 1991.
16. Bermudez A J, LL Munger and DH Ley. Pasteruellosis in Bobwhite quail. *Avian Dis.* 35:618-620, 1991.

17. Cobb DT, DH Ley, and PD Doerr. Isolation of *Mycoplasma gallopavonis* from free ranging wild turkeys in coastal North Carolina seropositive and culture negative for *Mycoplasma gallisepticum*. J. Wildlife. Dis. 28:105-109, 1992.
18. Avakian AP, DH Ley and MAT McBride. Humoral immune response of turkeys to strain S6 and a variant *Mycoplasma gallisepticum* studied by immunoblotting. Avian Dis. 36:69-77, 1992.
19. Ley DH and AP Avakian. An outbreak of *Mycoplasma synoviae* infection in North Carolina turkeys: comparison of isolates by sodium dodecyl sulfate-polyacrylamide gel electrophoresis and restriction endonuclease analysis. Avian Dis. 36:672-678. 1992.
20. Avakian AP, DH Ley, JE Berkhoff and MD Ficken. Breeder turkey hens seropositive and culture-negative for *Mycoplasma synoviae*. Avian Dis. 36:782-787. 1992.
21. Avakian AP, DH Ley and SH Kleven. Comparison of *Mycoplasma synoviae* strains by immunoblotting. Avian Pathol. 21:633-642. 1992.
22. Migaki TT, AP Avakian, HJ Barnes, DH Ley, AC Tanner and RA Magonigle. Efficacy of danofloxacin and tylosin in the control of mycoplasmosis in chicks infected with tylosin-susceptible or tylosin-resistant field isolates of *Mycoplasma gallisepticum*. Avian Dis. 37:508-514. 1993.
23. Tanner AC, AP Avakian, HJ Barnes, DH Ley, TT Migaki and RA Magonigle. A Comparison of danofloxacin and tylosin in the control of induced *Mycoplasma gallisepticum* infection of broiler chicks. Avian Dis. 37:515-522. 1993.
24. Avakian AP and DH Ley. Protective immune response to *Mycoplasma gallisepticum* demonstrated in respiratory-tract washings from *M. gallisepticum*-infected chickens. Avian Dis. 37:697-705. 1993.
25. Avakian AP and DH Ley. Inhibition of *Mycoplasma gallisepticum* growth and attachment to chick tracheal rings by antibodies to a 64-kilodalton membrane protein of *M. gallisepticum*. Avian Dis. 37:706-714. 1993.
26. Ley DH, AP Avakian and JE Berkhoff. Clinical *Mycoplasma gallisepticum* infection in multiplier breeder and meat turkeys caused by F strain: identification by sodium dodecyl sulfate-polyacrylamide gel electrophoresis, restriction endonuclease analysis, and the polymerase chain reaction. Avian Dis. 37:854-862. 1993.
27. Ley DH, K Flammer, P Cowen and D Whitt. Performance characteristics of diagnostic tests for avian chlamydiosis. J. Assoc. Avian Vet. 7:203-207. 1993.
28. Gurevich VA, DH Ley, JF Markham, KG Whithear and ID Walker. Identification of *Mycoplasma synoviae* immunogenic surface proteins and their potential use as antigens in the enzyme-linked immunosorbent assay. Avian Dis. 39:465-474. 1995.
29. Ley DH, Berkhoff JE and JM McLaren. *Mycoplasma gallisepticum* isolated from house finches (*Carpodacus mexicanus*) with conjunctivitis. Avian Dis. 40:480-483. 1996.
30. McLaren JM, Ley DH, Berkhoff JE and Avakian AP. Antibody responses of chickens to inoculation with *Mycoplasma gallisepticum* membrane proteins in immunostimulating complexes. Avian Dis. 40:813-822. 1996.
31. Ley DH, JM McLaren, AM Miles, HJ Barnes, S Heins Miller and G Franz. Transmissibility of live *Mycoplasma gallisepticum* vaccine strains ts-11 and 6/85 from vaccinated layer pullets to sentinel poultry. Avian Dis. 41:186-193. 1997.

32. Mashima TY, DH Ley, MK Stoskopf, EA Miller, SC Welte, JE Berkhoff, LA Degernes and WJ Fleming. Evaluation of treatment of conjunctivitis associated with *Mycoplasma gallisepticum* in house finches (*Carpodacus mexicanus*). *J Avian Med Surgery* 1997; 11:20-24. 1997.
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87. Wooming B, Huyen S, Ley DH. Diagnosis of Mycoplasma Infections in Colorado (1999 to present). American Association of Avian Pathologists/American Veterinary Medical Association Scientific Program, Nashville, TN; July 2002 (proceedings abstract, p. 26).
88. Ley DH, Martinez A, Vaillancourt J-P. *Mycoplasma gallisepticum* outbreaks in North Carolina, 1999-2001: Lessons learned from the tail end of the epidemic curve. XIII Congress of the World Veterinary Poultry Association, Co-sponsored by the American Association of Avian Pathologists and the American

Veterinary Medical Association, Program and Abstracts (pp. 203), and 2003 AVMA Convention Notes CD, Denver, CO; July 19-23, 2003.

89. Guy J, Barnes HJ, Smith L, Ley D, Vaillancourt J-P, Pakpinyo S. Turkey coronavirus potentiates enteropathogenic *Escherichia coli* colonization and pathogenicity in young turkeys. XIII Congress of the World Veterinary Poultry Association, Co-sponsored by the American Association of Avian Pathologists and the American Veterinary Medical Association, Program and Abstracts (pp. 212), and 2003 AVMA Convention Notes CD, Denver, CO; July 19-23, 2003.
90. Ley DH, Swarthout E, Sydenstricker K, Kollias GV, Dhondt AA. *Mycoplasma gallisepticum* conjunctivitis in house finches (*Carpodacus mexicanus*). Correlations among clinical signs and detection by polymerase chain reaction from conjunctival and choanal swabs. 52nd Annual Wildlife Disease Association Conference, Program and Abstracts (pp. 32-33), Saskatoon, Saskatchewan, August 11-14, 2003.
91. Cook W, Charlton K, Ley D. Testing recommendations for wild turkeys. 52nd Annual Wildlife Disease Association Conference, Program and Abstracts (pp. 84-86), Saskatoon, Saskatchewan, August 11-14, 2003.
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94. Jennings S, Ley DH, Vaillancourt J-P. Epidemiology of an unusual *Mycoplasma gallisepticum* outbreak. Combined meeting of the American Association of Avian Pathologists and the American Veterinary Medical Association (Philadelphia, PA; July 25-28) AAAP/AVMA Scientific Program, Abstract (p. 53). 2004.
95. Ley DH. Emerging variability of house finch strain *Mycoplasma gallisepticum* detected by random amplification of polymorphic DNA (RAPD) analyses. Combined meeting of the American Association of Avian Pathologists and the American Veterinary Medical Association (Philadelphia, PA; July 25-28) AAAP/AVMA Scientific Program, Abstract (p. 80). 2004.
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97. Ley DH, Sheaffer DS, Dhondt AA. Further western spread of *Mycoplasma gallisepticum* infection of house finches. American Association of Avian Pathologists, Scientific Program, Honolulu, HI. CD, Abstract #137 (p. 152). July 15-19, 2006.

PUBLICATIONS: books and chapters in books

1. Ley DH. Photo credit. Avian Medicine: Principles and Application. Branson W. Ritchie, Greg J. Harrison, and Linda R. Harrison (eds.). Wings Publishing, Inc., PO Box 6863, Lake Worth, Florida. 1994.
2. Ley DH, HW Yoder, Jr. *Mycoplasma gallisepticum* infection. In: Diseases of Poultry, 10th ed, BW Calnek, HJ Barnes, CW Beard, LR McDougald, YM Saif, eds. Ames, Iowa: Iowa State University Press, pp. 194-207. 1997.

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PUBLICATIONS: book review

1. Ley DH. Avian Viruses: Function and Control. Branson W. Ritchie. Wingers Publishing Inc., Lake Worth, Florida. Reviewed for Journal of Avian Medicine and Surgery 10:210. 1996.

PUBLICATIONS: extension, continuing education and public service

1. Dingfelder RS, DH Ley, JM McLaren and C Brownie. Experimental infection of turkeys with atypical strains of *Mycoplasma gallisepticum*. In Breakthrough 13(2)1989, Department of Poultry Science, North Carolina Cooperative Extension Service.
2. Rives DV, M Davidian and DH Ley. Infectious brusal disease virus titers may be misleading. In Breakthrough 15(2)May 1991, Department of Poultry Science, North Carolina Cooperative Extension Service.
3. Ley DH, JM McLaren and AP Avakian. Development of a subunit vaccine for *Mycoplasma gallisepticum* using immunostimulating complexes (ISCOMs) containing purified *M. gallisepticum* proteins. 1996 Leadership in the Poultry Industry, US Poultry and Egg Association, pp. 64.
4. Ley DH. Mycoplasma Update – Old Diseases Won’t Go Away. Abstracted from an invited presentation to the 2000 Western Poultry Disease Conference. Published in Poultry Digest, 59(4)22-24, 2000.
5. Ley DH. Identification of Avian Mycoplasma Strains by Random Amplification of Polymorphic DNA (RAPD). Zootechnica No. 6 June 2001, pp. 46-48.

SCIENTIFIC PRESENTATIONS: first author and/or presentor

1. Immune complex involvement in the pathogenesis of infectious bursal disease. 27th West. Poult. Dis. Conf., Davis, CA, 1978.
2. Pathogenesis of infectious bursal disease in specific pathogen free chickens. 31st West. Poult. Dis. Conf., Davis, CA, 1982.
3. Nitrite toxicosis in herring (*Larus argentatus*) and ring-billed (*Larus delawarensis*) gulls. Wildlife Disease Association, San Diego, California, July, 1984.
4. Intestinal cryptosporidiosis and reovirus isolation from young pen-raised bobwhite quail with severe diarrhea and high mortality. 34th Western Poultry Disease Conference, Davis, CA, March 3-6, 1985.
5. An investigation of the prevalence of embryo malformations in unhatched eggs from commercial broiler breeders. Am. Vet. Med. Assoc. 122nd Annual Meeting, Las Vegas, NV, 1985.
6. Experimental production of enteritis in bobwhite quail (*Colinus virginianus*) with cryptosporidium and reovirus. Asociacion Nacional de Especialistas en Ciencias Avicolas de Mexico and Western Poultry Disease Conference, Puerto Vallarta, Mexoco, April 29 to May 2, 1986.
7. Experimental cryptosporidiosis and infectious bursal disease in specific-pathogen-free chickens. Am. Vet. Med. Assoc. 123rd Annual Meeting, Atlanta, GA, 1986.

8. Xeroradiographic study of the developing turkey embryo. Poultry Science Association, Raleigh, NC, 1986.
9. Prevalence of embryo malformations in eggs from commercial broiler breeders. Poultry Science Association, Raleigh, NC, 1986.
10. Avian cryptosporidiosis - an update. Western Poultry Disease Conference Davis, CA, 1987.
11. Characterization of atypical *Mycoplasma gallisepticum* isolates from North Carolina commercial turkeys. Am. Vet. Med. Assoc., Chicago, IL, 1987.
12. Interaction of reovirus and Cryptosporidium in the production of enteritis in chickens. Am. Vet. Med Assoc., Chicago, IL, 1987.
13. Intestinal cryptosporidiosis in captive and free-ranging bobwhite quails. Wildlife Disease Association 36th Annual Conf., Lincoln, NE, 1987.
14. Avian cryptosporidiosis - an emerging disease. First International Conference on Zoological and Avian Medicine, Oahu, Hawaii, 1987.
15. Pathogenicity, transmissibility and immunogenicity of atypical *Mycoplasma gallisepticum* isolates from turkeys. 7th International Congress of the International Organization for Mycoplasmology, Baden, Austria, June 2-9, 1988.
16. Sodium dodecyl sulfate-polyacrylamide gel electrophoresis and immunoblot analyses of atypical *Mycoplasma gallisepticum* isolates from commercial turkeys. Am. Vet. Med. Assoc., Portland, OR, 1988.
17. Histomoniasis and reticuloendotheliosis in a wild turkey (*Meleagris gallopavo*) in North Carolina. Wildlife Disease Association, 37th Annual Conference, Athens, GA, August 7-11, 1988.
18. Characterization of low virulent *Mycoplasma gallisepticum* isolates from commercial turkeys. 38th Western Poultry Disease Conference, Tempe, AZ, 1989.
19. Comparison of *Mycoplasma synoviae* strains. The 8th Congress of the International Organization for Mycoplasmology, July 8-12, 1990, Istanbul, Turkey.
20. An outbreak of *Mycoplasma synoviae* in North Carolina breeder and market turkeys: comparison of isolates by SDS-PAGE and restriction endonuclease DNA analyses. American Veterinary Medical Association, July 21-25, 1990, San Antonio, Texas.
21. An outbreak of *Mycoplasma synoviae* in North Carolina turkeys: comparison of isolates by SDS-PAGE and restriction endonuclease analyses. Poultry Science Association, August 5-9, 1990, Blacksburg, Virginia.
22. *Mycoplasma gallisepticum* F strain isolated from commercial breeder turkeys. Western Poultry Disease Conference, Sacramento, CA, March 1-3, 1992.
23. Antibodies to a membrane protein of *Mycoplasma gallisepticum* inhibit growth and attachment of the bacterium. 129th Annual Meeting of the AVMA, Boston, MA, August 1-5, 1992.
24. Comparison of diagnostic tests for avian chlamydiosis. Annual Conference of the Association of Avian Veterinarians, New Orleans, Louisiana, Sept. 1-5, 1992.

25. Diagnosis of *M. gallisepticum* and *M. synoviae* using DNA probe polymerase chain reaction test kits. Western Poultry Disease Conference, Sacramento, CA, Feb. 28 to March 2, 1993.
26. Diagnosis of *M. gallisepticum* and *M. synoviae* using DNA probe polymerase chain reaction test kits. Xth International Congress of the World Veterinary Poultry Association, Sydney, Australia, August 16-19, 1993.
27. Diagnosis of avian Mycoplasma infections. International Symposium: Advances in Avian Mycoplasma Research, International Organization for Mycoplasma, Domzale, Slovenia, 27-29 September 1993.
28. Diagnosis of *M. gallisepticum* and *M. synoviae* using DNA probe polymerase chain reaction test kits. International Symposium: Advances in Avian Mycoplasma Research, International Organization for Mycoplasma, Domzale, Slovenia, 27-29 September 1993.
29. United States perspective on avian mycoplasmosis. Australian Veterinary Poultry Association Conference, Victorian Institute of Animal Science, Attwood, Victoria, Australia, 23-24 November 1993.
30. Identification of *Mycoplasma synoviae* immunogenic surface proteins and their potential use as ELISA antigens. American Veterinary Medical Association, San Francisco, 9-13 July 1994.
31. Identification of *Mycoplasma synoviae* immunogenic surface proteins and their potential use as ELISA antigens. 10th International Congress of the International Organization for Mycoplasma, Bordeaux, FRANCE, 19-26 July 1994.
32. Isolation of *Mycoplasma gallisepticum* from an outbreak of conjunctivitis in house finches. 132nd Annual Meeting of the AVMA. Pittsburgh, PA. July 8-12, 1995.
33. Immune response in chickens to *Mycoplasma gallisepticum* membrane proteins incorporated into immunostimulating complexes (ISCOMs). 132nd Annual Meeting of the AVMA. Pittsburgh, PA. July 8-12, 1995.
34. Isolation of *Mycoplasma gallisepticum* from house finches with conjunctivitis. American Association of Zoo Veterinarians, Wildlife Disease Association, American Association of Wildlife Veterinarians, East Lansing, MI. August 12-17, 1995.
35. Transmissibility and safety of live *Mycoplasma gallisepticum* vaccines. XXI National Convention of Asociacion Nacional de Expecialistas en Ciencias Avicolas (ANECA) and 45th Western Poultry Disease Conference (WPDC), Cancun, Mexico, 30 April to 4 May, 1996.
36. Avian mycoplasmosis: technical and research perspective. Seventh Annual Elanco Turkey Technical Seminar. Indianapolis, IN, 13-14 June 1996.
37. Molecular epidemiological investigations of *Mycoplasma gallisepticum* conjunctivitis in songbirds by random amplified polymorphic DNA (RAPD) analyses. International Workshop on Molecular Epidemiology and Evolutionary Genetics of Pathogenic Microorganisms. Centers for Disease Control and Prevention, U. S. Department of Health and Human Services, Public Health Service, Atlanta, GA, 17-19 June 1996.
38. Transmissibility and safety of live *Mycoplasma gallisepticum* vaccines. 33rd Biennial Conference of the National Poultry Improvement Plan, Nashville, TN, 30 June to 2 July, 1996.
39. Molecular epidemiological investigations of *Mycoplasma gallisepticum* conjunctivitis in songbirds by random amplified polymorphic DNA (RAPD) analyses. International Organization for Mycoplasma Letters: 11th International Congress, Orlando, FL 14-19 July 1996.

40. *Mycoplasma gallisepticum* strain identification by random amplified polymorphic DNA analysis. 133rd Annual Meeting of the AVMA. Louisville, KY. July 20-24 1996.
41. Random amplified polymorphic DNA (RAPD) analyses for molecular epidemiological studies of *Mycoplasma gallisepticum* and *M. synoviae*. 134th Annual Convention of the American Veterinary Medical Association, American Association of Avian Pathologists, Reno, Nevada. July 19-24, 1997.
42. Transmissibility of live *Mycoplasma gallisepticum* vaccine strains ts-11 and 6/85 from vaccinated layer pullets to sentinel poultry. XI International Congress of the World Veterinary Poultry Association, Budapest, HUNGARY. August 18-22, 1997.
43. Random amplified polymorphic DNA (RAPD) analyses for molecular epidemiological studies of *Mycoplasma gallisepticum* and *M. synoviae*. XI International Congress of the World Veterinary Poultry Association, Budapest, HUNGARY. August 18-22, 1997.
44. *Mycoplasma synoviae* strain identification by random amplified polymorphic DNA (RAPD) analyses. Ley DH, McLaren JM, Berkhoff JE, Levisohn S. 12th International Organization for Mycoplasma Conference, Sydney, AUSTRALIA.. 22-28 July 1998.
45. Application of molecular diagnostic methods to track environmental infection of poultry breeding flocks by *Mycoplasma gallisepticum*. Levisohn S, Gercham I, Ley DH, Geva Z, Weisman Y. 12th International Organization for Mycoplasma Conference, Sydney, AUSTRALIA. 22-28 July 1998.
46. Molecular epidemiology of songbird conjunctivitis associated with *Mycoplasma gallisepticum* and *M. sturni*. Ley DH. 47th Annual Wildlife Disease Association Conference, Madison, Wisconsin. 9-13 August 1998.
47. The Internet as a source of poultry information. North Carolina Veterinary Conference, Raleigh, NC. October 30, 1998.
48. Pathogenic and molecular characterization of *Mycoplasma sturni*. American Veterinary Medical Association 136th Annual Convention, New Orleans, Louisiana; July 10-14, 1999.
49. Advanced diagnostic techniques and new developments: mycoplasmosis. 26th World Veterinary Association (WVA) Congress, Lyon, France; September 23-26, 1999.
50. Mycoplasmosis: some things old and some things new. Western Poultry Disease Conference, Sacramento, CA; March 5-7, 2000.
51. *Mycoplasma gallisepticum* from evening grosbeaks (*Coccothraustes vespertinus*) and pine grosbeaks (*Pinicola enucleator*) with conjunctivitis in Quebec, Canada. 49th Annual Wildlife Disease Association Conference, Grand Teton National Park, WY; Jun 4-8, 2000.
52. Epidemiology of *Mycoplasma gallisepticum* in North Carolina. National Poultry Improvement Plan Millennial Conference, Colorado Springs, CO; Jun 29 – Jul 1, 2000.
53. Avian mycoplasma strain identification by random amplification of polymorphic DNA (RAPD). American Veterinary Medical Association Annual Convention and American Association of Avian Pathologists Symposium 2000 - Molecular Identification and Epidemiology of Avian Pathogens, Salt Lake City, UT; Jul 23, 2000.
54. Molecular and field epidemiological investigations of *Mycoplasma gallisepticum* outbreaks in commercial poultry. XXI World's Poultry Congress, Montreal, Canada; Aug 20-24, 2000.

55. Molecular and field epidemiological investigations of *Mycoplasma gallisepticum* outbreaks in commercial poultry. Invited participant for poster workshop on Molecular Characterization of Pathogens. XXI World's Poultry Congress, Montreal, Canada; Aug 20-24, 2000.
56. DNA fingerprints of *Mycoplasma gallisepticum* isolates from the 1999-2000 North Carolina experience. 35th National Meeting on Poultry Health and Processing; Ocean City, Maryland; Oct 18-20, 2000.
57. Mycoplasma DNA fingerprinting update. North Carolina Veterinary Conference, Research Triangle Park, NC; Nov 5, 2000.
58. Mycoplasmosis in North Carolina Poultry: 1999-2000. United States Animal Health Association, Committee on Transmissible Diseases of Poultry and Other Avian Species, Birmingham, Alabama; Oct 23-24, 2000.

SCIENTIFIC PRESENTATIONS: with co-authors (beginning in 1998)

59. Vaillancourt J-P, D Carver, HJ Barnes, D Ley, D Wages, J Guy, O Fletcher, M Stringham, M. Saif, D Reynolds, T Brown, E Gonder, D Rives. Development of a University-Industry-Government partnership to combat emerging poultry diseases. Poster presented at the 15th Symposium on Veterinary Medical Education: Strategic Alliances, Bridges to the Future, Purdue University, West Lafayette, June 6-8, 1998.
60. Vaillancourt J-P, H Barnes, D Ley, D. Wages. The Poultry Health Management group at North Carolina State University: redefining the learning environment. American Veterinary Medical Association 136th Annual Convention, New Orleans, Louisiana; July 10-14, 1999.
61. Vaillancourt JP, Martinez A, Carver D, Ley DH. The epidemiology of *Mycoplasma gallisepticum* in North Carolina: what we know, what we don't know, and why. 72nd Northeastern Conference on Avian Diseases, Newark, DE; Jun 14-16, 2000.
62. Kleven SH, Bricker J, Garcia M, Hein R, Heins-Miller S, Kinney N, Leiting V, Liu T, Ley DH, Quinn J, Rudd K, Wallner-Pendleton E, Whithier K. Isolation and characterization of *Mycoplasma gallisepticum* vaccine-like strains from unvaccinated chickens and turkeys. American Veterinary Medical Association Annual Convention and Meeting of the American Association of Avian Pathologists, Salt Lake City, UT; Jul 23-26, 2000.
63. Levisohn S, Gerchman I, Ley D, Garcia M, Yogev D, Weisman Y. Epidemiological studies of *Mycoplasma gallisepticum* infection in Israel: What we can learn from molecular typing. American Veterinary Medical Association Annual Convention and Meeting of the American Association of Avian Pathologists, Salt Lake City, UT; Jul 23-26, 2000.
64. Vaillancourt J-P, Martinez A, Ley D. Disease Prevention and Treatment: MG/MS. Production and Health Seminar. US Poultry & Egg Association. Alabama, Sept. 27-28, 2000.
65. Vaillancourt JP, Martinez A, Ley D, Carver D, Quinn J, Wages D, Smith C. Actualizacion Sobre Mycoplasma. Curso "Enfermedades emergentes: Criterios generales sobre problemas respiratorios de las aves". ANECA, Mexico City, MEXICO; Oct 6, 2000.
66. Vaillancourt JP, Martinez A, Smith C, Ley DH. The epidemiology of *Mycoplasma gallisepticum* in North Carolina. 35th National Meeting on Poultry Health and Processing; Ocean City, Maryland; Oct 18-20, 2000.
67. Martinez A, Vaillancourt J-P, Ley D, Smith C. Epidemiology of *Mycoplasma gallisepticum* in North Carolina. Mycoplasma diagnostic workshop. National Poultry Improvement Plan, Mycoplasma Workshop, University of Georgia, Athens, GA; Nov 13, 2000.

68. Vaillancourt JP, Ley D, Martinez A. Les Mycoplasmes Aviaires: Les Caracteristiques; Les Enjeux; Les Moyens de Lutte et Les Diagnostics (Avian Mycoplasma: Characteristics; Diagnoses; Control; and Issues). UCAAB Poultry Pathology Session, Chateau-Thierry, France: Nov. 14-15, 2000.
69. Martinez A, Gonder E, Vaillancourt J-P, Ley D. Issues associated with *Mycoplasma gallisepticum* in turkey breeders. 2000 Production Focus Health Studies, Ocean City, MD; Oct 17, 2000.
70. Martinez A, Vaillancourt J-P, Ley DH. The epidemiology of *Mycoplasma gallisepticum* in North Carolina. Western Poultry Disease Conference, Davis, Calif. March 24-27, 2001.
71. Martinez A, Vaillancourt J-P, Ley DH, Smith C. The epidemiology of *Mycoplasma gallisepticum* in North Carolina. National Poultry Improvement Plan, Mycoplasma Diagnostic Workshop. University of Georgia, Athens, GA; April 2, 2001.
72. Ley DH, Vaillancourt J-P, Martinez A. Recent MG outbreak and use of PCR and DNA fingerprinting. NCSU Poultry Science Seminar, Raleigh, NC; April 2, 2001.
73. Ley DH, Vaillancourt J-P, Martinez A. Avian mycoplasma strain identification by random amplified polymorphic DNA (RAPD) fingerprinting. National Poultry Improvement Plan, Mycoplasma Diagnostic Workshop. University of Georgia, Athens, GA; April 3, 2001.
74. Martinez A, Vaillancourt J-P, Ley DH, Smith C. The epidemiology of *Mycoplasma gallisepticum* in North Carolina. Georgia Veterinary Medical Association Annual Convention and Trade Show, Jekyll Island, GA; June 7-10, 2001.
75. Ley DH, Vaillancourt J-P, Martinez A. *Mycoplasma gallisepticum* in North Carolina: 1999-2001. American Veterinary Medical Association Annual Convention, Boston, MA; July 15, 2001.
76. Martinez A, Vaillancourt J-P, Ley DH. *Mycoplasma gallisepticum* in North Carolina 1999-2001. American Veterinary Medical Association Annual Convention, Boston, MA; July 16, 2001.
77. Wooming B, Huyen S, Ley DH. Observations on the use of the random amplified polymorphic DNA analysis test on *Mycoplasma gallisepticum* cases in Colorado. American Veterinary Medical Association Annual Convention, Boston, MA; July 16, 2001.
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chain reaction from conjunctival and choanal swabs. 52nd Annual Wildlife Disease Association Conference, Saskatoon, Saskatchewan, August 11-14, 2003.

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89. Ley DH, Sheaffer DS, Dhondt AA. Further western spread of *Mycoplasma gallisepticum* infection of house finches. American Association of Avian Pathologists, Scientific Program, Honolulu, HI. CD, Abstract #137 (p. 152). July 15-19, 2006.

PUBLIC SERVICE AND INVITED PRESENTATIONS

1. Avian Serology and the ELISA system. Pfizer Turkey Health Seminar, Southern Pines, NC, July 11-12, 1985.
2. Animal health data system feasibility study for Caribbean basin countries, St. Lucia and St. Vincent, West Indies, Dec. 8-16, 1986.
3. Characterization of atypical *Mycoplasma gallisepticum* isolates from commercial turkeys. University of Calif., Davis, CA, Jan. 14, 1988.
4. Characterization of atypical *Mycoplasma gallisepticum* isolates from commercial turkeys. North Carolina State University, College of Veterinary Medicine, March 22, 1988.
5. Avian mycoplasma culture techniques. Rollins Animal Disease Diagnostic Laboratory, North Carolina Department of Agriculture, Raleigh, NC, May 8, 1989.
6. Avian mycoplasma culture and serology. Rollins Animal Disease Diagnostic Laboratory, North Carolina Department of Agriculture, Raleigh, NC, Dec. 9, 1989.
7. Research review. College of Veterinary Medicine, North Carolina State University, Raleigh, NC, March 16, 1990.
8. Avian research review. North Carolina Poultry Federation, Raleigh, NC, May 22, 1990.

9. Workshop on the effects of released pen-raised Bobwhites on wild bird populations. Panelist: Tall Timbers Research Station and the Southeastern Cooperative Wildlife Disease Study, Athens, GA, August 16-17, 1990.
10. Current problems with *Mycoplasma synoviae*. North Carolina turkey breeder company veterinarians, Raleigh, NC, October 24, 1990.
11. The use of ELISA serology for the detection of mycoplasmosis in turkeys. Co-organizer, session chair, and presenter: Preliminary studies using ELISA for mycoplasma testing. North Carolina State University Poultry Science Extension and NCSU College of Veterinary Medicine Population Medicine, Raleigh, NC, March 6, 1991.
12. Avian mycoplasma serology - ELISA. North Carolina Department of Agriculture, Rollins Animal Disease Diagnostic Laboratory, Work Conference, Raleigh, NC, Sept. 14, 1991.
13. NCSU Turkey Research and Extension Overview. NCSU College of Agriculture and Life Sciences, NC Agricultural Research Service, Raleigh, NC, March 19, 1992.
14. *Mycoplasma gallisepticum* F strain isolated from commercial breeder (and meat) turkeys. NCVMA/SCVA 2nd Combined Annual Meeting, Ashville, NC, June 25-28, 1992.
15. Avian mycoplasma symposium. Poultry Disease Research Center, Department of Avian Medicine, University of Georgia, Athens, GA, August 10-11, 1992.
16. Avian medicine education at the North Carolina State University College of Veterinary Medicine. Xth International Congress of the World Veterinary Poultry Association, Sydney, Australia, August 16-19, 1993.
17. International Organization for Mycoplasma, Avian Mycoplasma Team Consultations, Domzale, Slovenia, 29 September to 2 October 1993.
18. Consultations of the IRPCM Working Team on Avian Mycoplasmas, Ploufragan, FRANCE, 27 to 29 July 1994.
19. Avian Mycoplasmosis, Overview Meeting on House Finch Eye Infection, Southeastern Cooperative Wildlife Disease Study and Maryland Dept. of Agriculture, Annapolis, MD, Sept. 1, 1994.
20. Immune response in chickens to *Mycoplasma gallisepticum* membrane proteins incorporated into immunostimulating complexes (ISCOMs). Chancellor's Circle Weekend Activities, NCSU Student Center, Raleigh, NC Sept 9, 1995.
21. Transmissibility and Safety of MG Vaccines. Mid-Atlantic Layer Management Workshop, North Carolina Cooperative Extension Service, Statesville, NC, Sept. 13-14, 1995.
22. Live MG vaccines. National Poultry Improvement Plan, 33rd Biennial Conference, Nashville, TN 1-2 July 1996.
23. Report to Technical Committees of NE-138 (Epidemiology and Control of Emerging Strains of Poultry Respiratory Disease Agents) and NCR-191 (Avian Respiratory Diseases: Pathogenesis, Epizootiology and Control) Cooperative Regional Projects, Chicago, Illinois; November 8-9, 1996.
24. Report to Technical Committees of NE-138 (Epidemiology and Control of Emerging Strains of Poultry Respiratory Disease Agents) and NCR-191 (Avian Respiratory Diseases: Pathogenesis, Epizootiology and Control) Cooperative Regional Projects, Chicago, Illinois; November 7-8, 1997.

25. Report to Technical Committees of NE-138 (Epidemiology and Control of Emerging Strains of Poultry Respiratory Disease Agents) and NCR-191 (Avian Respiratory Diseases: Pathogenesis, Epizootiology and Control) Cooperative Regional Projects, Chicago, Illinois; November 6-7, 1998.
26. *Mycoplasma conjunctivitis* in songbirds. National Wildlife Rehabilitators Association, Symposium '99, Greensboro, NC; March 9-13, 1999.
27. Transmissibility of live *Mycoplasma gallisepticum* vaccine strains ts-11 and 6/85 from vaccinated layer pullets to sentinel poultry. National Poultry Improvement Plan Mycoplasma Workshop, Athens GA, November 8-12, 1999.
28. Avian Mycoplasma Strain Identification by Random Amplified Polymorphic DNA (RAPD) Fingerprinting. National Poultry Improvement Plan Mycoplasma Workshop, Athens GA, November 8-12, 1999.
29. *Mycoplasma gallisepticum* outbreak update. Report to North Carolina poultry producers, veterinarians, and regulatory officials. NCSU Cooperative Extension Office, Sampson County. January 13, 2000.
30. *Mycoplasma gallisepticum* outbreak update. Report to North Carolina poultry producers, veterinarians, and regulatory officials. Greyfox Inn, Kenansville. March 2, 2000.
31. *Mycoplasma gallisepticum* outbreak in North Carolina, control measure planning session with NCDA, Cooperative Extension and CVM. NCDA Rollins Diagnostic Laboratory, 26 Apr 2000.
32. Epidemiology of *Mycoplasma gallisepticum* in North Carolina. Martinez A, Vaillancourt J-P, Ley D, Smith C. National Poultry Improvement Plan Mycoplasma Workshop, University of Georgia, Athens, GA; Nov 13, 2000.
33. Display booth demonstrating the Poultry Health Management Image Database Prototype, and panel member for discussion on Image Databases: Strategy and Deployment. NC State Instructional Technologies Expo. Jane S. McKimmon Center, Raleigh, NC; Sep 20, 2000.
34. Invited participant, United States Animal Health Association, Committee on Transmissible Diseases of Poultry and Other Avian Species, Subcommittee on Mycoplasmosis. Birmingham, Alabama; 22 Oct 2000.
35. Vaillancourt JP, Martinez A., Ley D. MG update. 24th Annual North Carolina Turkey Industry Days and Poultry Supervisors' Short Course. Raleigh, North Carolina. Oct. 3-4, 2000.
36. Vaillancourt J-P, Martinez A., Ley D. Mycoplasma – What Went Right, What Went Wrong. Broiler Breeder and Hatchery Management Conference. Statesville, NC. Oct 25-26, 2000.
37. Vaillancourt J-P, Martinez A, Ley D. Mycoplasma gallisepticum/Mycoplasma synoviae. 2000 Poultry Production and Health Seminar. Sponsored by the US Poultry & Egg Association. Birmingham, Alabama. Sept. 20th – 21st, 2000.
38. Display booth entitled “Digital Imaging at the College of Veterinary Medicine” demonstrating 1) Poultry Health Management Image Database Prototype, 2) Turkey Processing Trimming CD, and 3) Poultry Health Management Web Pages. DH Ley, H Mermes, L Osegueda, A Martinez, JP Vaillancourt. United States Agricultural Information Network (USAIN), Information Technology Expo. Jane S. McKimmon Center, Raleigh, NC; April 23, 2001.
39. Display booth entitled “College Image Management for Teaching and Research” demonstrating the Cumulus for Workgroups Media Asset Management system. DH Ley, H Mermes, L Osegueda. Instructional Technologies Exposition, Jane S. McKimmon Center, Raleigh, NC; September 13, 2001.

40. CVM Poultry Health and Design Library Experiences in Collaboration. L Osegueda, DH Ley. Instructional Technologies Exposition, Jane S. McKimmon Center, Raleigh, NC; September 13, 2001.
41. Ley DH, Martinez A, Vaillancourt J-P. *Mycoplasma gallisepticum* in North Carolina, USA; 1999-2001. Meril European Union Technical Symposium. Tunis, TUNISIA, 26-27 September 2002.
42. Ley DH, Martinez A, Vaillancourt J-P. *Mycoplasma gallisepticum* Outbreaks in North Carolina, 1999-2001. Lessons Learned from the Tail End of the Epidemic Curve. Comparative Pathology Seminar Spring 2003 Series, Department of Pathobiology and Veterinary Science, College of Agriculture and Natural Resources, University of Connecticut, Storrs, CT. April 10, 2003.
43. Ley DH, Martinez A, Vaillancourt J-P. *Mycoplasma gallisepticum* Outbreaks in North Carolina, 1999-2001. Lessons Learned from the Tail End of the Epidemic Curve. Poultry Health Management Rounds/Seminar Spring 2003 Series, Department of Population Health and Pathobiology, NCSU-CVM Raleigh, NC. April 21, 2003.
44. Ley DH. NC Wildlife Resources Commission, Waterfowl Committee Meeting on “Disease Testing Requirements for Captive-Reared Waterfowl Released into the Wild in North Carolina”, invited participant and CVM representative, Corolla, NC. May 13, 2004.

CONSULTANCIES

- Inter-American Institute for Cooperation on Agriculture (IICA), Pan American Health Organization (PAHO): to support the Government of Suriname in improvement of poultry disease management and poultry health, 1986.
- Inter-American Institute for Cooperation on Agriculture (IICA), CARICOM: to participate in a feasibility study of animal health data systems and advise on matters of poultry production in Caribbean basin countries, 1986-87.
- US Environmental Protection Agency: reviewer for research cooperative agreements, 1987.
- United States Environmental Protection Agency: research position review panel, 1989.
- Pfizer Animal Health, Malaysia-Indonesia-Singapore-Thailand Region, Bangkok, Thailand: presented seminars on the diagnosis of avian mycoplasma infections, 4-8 October 1993.
- Auburn University: Outside Reviewer for Auburn University Biogrant Program, 1 proposal, March 2006.

PROFESSIONAL ORGANIZATIONS, OFFICES AND COMMITTEES

American Association of Veterinary Clinicians

American Association of Avian Pathologists

Enteric Diseases Committee, 1987-88, 2002-04

Diseases of Wild Birds Committee, 1987-89; Chair, 1990-93

Electronic Information Committee, 1995-99; Chair, 1999-2003

Education Committee, 2002-present

Biotechnology Committee, 2002-04

Respiratory Diseases Committee, 2002-04

Avian Diseases, Editorial Board, 1990-2005

Avian Diseases, Reviewer, 2006-present

World Veterinary Poultry Association Program Committee, Local Arrangements subcommittee member 2000-03

American College of Veterinary Microbiologists

Continuing Education and Program Committee, 1989-92

Budget Committee, Chair, 1997-2000

American College of Poultry Veterinarians

American Veterinary Medical Association

Association of Avian Veterinarians

Association of Wildlife Veterinarians

International Organization for Mycoplasmatology (IOM), International Research Program on Comparative Mycoplasmatology (IRPCM), Avian Team Leader, 2002-08
 North Carolina Poultry Federation
 North Carolina State Veterinary Medical Association
 Technical Committee member, National Poultry Improvement Plan, 1996-present
 Technical Committee member, USDA CSREES Northeast Regional Project NE-138 entitled Epidemiology and Control of Emerging Strains of Poultry Respiratory Disease Agents. October 1, 1996 through September 30, 2001. Merged in 2001 with NC-228 (Avian Respiratory Disease: Pathogenesis, Surveillance, Diagnosis and Control) to 2004.
 Reviewer, Kuwait Foundation for the Advancement of Science. Competitive research proposal entitled Application of Molecular Methods for Detecting Avian Mycoplasmosis in Kuwait Poultry Industries. November 2002.
 Wildlife Disease Association
Journal of Wildlife Diseases, Reviewer.
Journal of Wildlife Diseases, Assistant Editor 2005-present.
 World Veterinary Poultry Association
Avian Pathology, Reviewer
 USDA National Research Initiative Competitive Grants Program, peer reviewer 1991, 1996, 2000.
 USDA ARS CRIS Animal Health Ad Hoc Review – Fall 2003, research project plan peer reviewer, 2003.
 USDA/CSRESS/NRICGP Food Safety Pre-Harvest Ad Hoc Review – Spring 2004.
 USDA Peer review panelist for the Office of Scientific Quality Review, Agricultural Research Service Project Plans. Beltsville, MD, August 16-17, 2006.

UNIVERSITY SERVICE ACTIVITIES

North Carolina State University

- Graduate Faculty, associate member, October 1984 to September 1996
- Graduate Faculty, full member, September 1996 to present
- University Research Committee, 1994-96
- Committee on Institutional History and Comemoration, 1988-1989
- NCSU Biotechnology Faculty, 1998 to present
- CALS, Department of Poultry Science, CVM representative to meeting with CSRESS Review Team, October 10, 2000
- NCSU Biotechnology Faculty, 1999-present
- NCSU Genomics Faculty, 2000-present
- NCSU Center for Comparative Medicine and Translational Research, 2005-present.
- Temporary Assignments during Dr. Vaillancourt's sabbatical
 Faculty Center for Teaching and Learning, Advisory Committee, 2002-03
 Evaluation of Teaching, University Standing Committee, 2002-03
- CVM representative to LITRE Advisory Board Digital Asset Management Task Force, 2005-06
- CVM representative to NCSU Digital Asset Management Task Force, 2005-06.

College of Veterinary Medicine

- Assistant to the Assoc. Dean for Research, 1994-96
- CVM Research Committee, 1987-89
- International Program Committee, February 1988 to present
- Safety Committee, 1987-91
- Avian Medicine Intern Advisory Committee, Chair, 1984-95
- Avian Medicine Intern Advisory Committee, member, 1995-present
- Space Committee, Subcommittee for Additional Animal Holding Space, 1985
- Litwack Memorial Lecture Committee, 1986
- Faculty Committee on Graduate and Residency Programs, 1985-86
- Hospital Board, Subcommittee on Central Supply and Hospital Pharmacy, 1984-87
- Dean's Avian Medicine Advisory Committee, 1990 to present
- Mentor Program, 1989 to present

- Admissions Committee, adjunct interviewer, 1989 to 1991
- Century II fund raising campaign, captain, 1990-91
- FAE Ad Hoc Committee on Veterinary Faculty Practice Plan, 1988-91; chair, 1991 to present
- CVM Committee on Veterinary Faculty Practice Plan, 1991 to present
- Population Medicine Program Core Faculty, 1990 to present
- USAID University Development Linkage Program Grant, participant
- CVM Admissions Committee, 1997-2000
- Infectious Diseases concentration area Faculty
- Re-accreditation Self Study Committee, 1999-2000
- Meetings with AVMA Accreditation Site Visit team, May 8 & 9, 2000
- CVM Building Committee, 2000-05.
- FAHRM representative to CVM Reappointment, Promotion, and Tenure Committee, 2001-04
- CVM Cumulus (digital library) Advisory Committee, 2002-present
- Biomedical Communications Study Group, 2002
- Session moderator. North Carolina Poultry Health Conference, Raleigh, NC; Nov 12, 2004.
- 2004 CVM Research Forum Judge, March 26, 2004
- Food Animal Scholars mentor for Jason Thornton, 2005-11
- PHP representative to CVM Research Committee, 2006-07 (completing term of W. Gebreyes)
- PHP representative to CVM Web Committee, 2006-present

Department (FAE, FAHRM, PHP)

- Veterinary Faculty Practice Plan Committee
- Chair, Poultry Medicine Intern Advisory Committee, 1984-97
- Co-Chair, Poultry Health Management Resident/Graduate Advisory Committee, 1998-2007
- Chair, Poultry Health Management faculty position Search Committee, 1998-2000
- Curriculum Review Committee
- Poultry Health Management Group Leader Jan 1 to Dec 31 2000
- Member, Post-tenure Review Committee 2001-04
- Peer Evaluation of Teaching for Dr. Mike Whitacre, VMF 951, Fall 2004
- Poultry Health Management representative for CVM Career Fair, August 13, 2004
- Member, PHP search committee for two Poultry Health Management faculty positions, 2005