

Pamela L. Ruegg, DVM, MPVM
Professor, University of Wisconsin – Madison

Formal Education

1982, Bachelor of Science – Veterinary Science, “with honor”, Michigan State University, E. Lansing, MI
1984, Doctor of Veterinary Medicine, Michigan State University, E. Lansing, MI
1988, Master of Preventive Veterinary Medicine, University of California, Davis, CA
1989, Residency Certificate, “Food Animal Herd Health and Reproductive Management”, University of California, Davis, CA

Board Certification

1989, American College of Veterinary Preventive Medicine
1992 & 2002, American Board of Veterinary Practitioners (Dairy Practice)

Current Position

August 1998, University of Wisconsin, Madison (50% extension, 50% research)
Assistant Professor, Extension Milk Quality Specialist, (Aug, 1998 to June, 2001)
Associate Professor, Extension Milk Quality Specialist (July 2001 to June, 2006)
Professor, Extension Milk Quality Specialist, (July 2006 to present)

Honors and Awards

1994, Michigan Veterinary Medical Association: Award of Appreciation
2004, University of Wisconsin Extension: Award for Excellence
2005, University of Wisconsin – Madison, College of Agriculture and Life Sciences: Extension Award
2005, Wisconsin Veterinary Medical Association: Veterinarian of the Year
2007, American Dairy Science Association, Mastitis Research Award
2009, American Association Bovine Practitioners, Award of Excellence
2010, University of Sassari, Sassari, Italy – Invited Visiting Professor

Publications Refereed Journals last 5 years

1. Oliveira, L., A. C. O. Rodrigues, C. Hulland and P.L. Ruegg. 2011. Toxin production, toxin genes and genetic diversity of *Staphylococcus aureus* recovered from cases of bovine subclinical mastitis. *Am. J. Vet Res.* 72:1361-1368.
2. Lago, A., S. M. Godden, R. Bey, P.L. Ruegg, and K. Leslie. 2011. The selective treatment of clinical mastitis based on on-farm culture results I: Effects on antibiotic use, milk withholding time and short-term clinical and bacteriological outcomes. *J Dairy Sci* 84:4441-4456.
3. Lago, A., S. M. Godden, R. Bey, P.L. Ruegg, and K. Leslie. 2011. The selective treatment of clinical mastitis based on on-farm culture results II: Effects on lactation performance including, clinical mastitis recurrence, somatic cell count, milk production and cow survival. *J Dairy Science* 94:4457-44467.
4. Pínzon-Sánchez, C., and P.L. Ruegg. 2011. Risk factors associated with short-term post-treatment outcomes of clinical mastitis. *J Dairy Science* 94:3397-3410.
5. Pantoja, J.C. F., D. J. Reinemann, and P. L. Ruegg. 2011. Factors associated with coliform counts in unpasteurized bulk milk. *J Dairy Science* 94:2680-2691. .

6. Spanu, C., Y.M. Berger, D. L. Thomas, and P.L. Ruegg. 2011. Impact of intramammary antimicrobial dry treatment and teat sanitation on somatic cell count and intramammary infection in dairy ewes. *Small Ruminant Research*, 97:139-145.
7. Pínzon-Sánchez, C., V. E. Cabrera and P.L. Ruegg. 2011. Decision tree analysis of treatment strategies for mild and moderate cases of clinical mastitis. *J Dairy Sci*. 94:1873-1892.
8. Ruegg, P.L. 2009. Implementing Effective Milk Quality Programs. *Irish Veterinary Journal* 62:411-414.
9. Pantoja, J. C. F., D. J. Reinemann, and P. L. Ruegg. 2009. Associations between Bacterial and Somatic Cell Counts in Raw Bulk Milk. *J Dairy Sci*. 92:4978-4987.
10. Apparao, D. J., L. Oliviera, and P. L. Ruegg. 2009. Relationship between In Vitro susceptibility Test Results and Treatment Outcomes for Gram-Positive Mastitis Pathogens Following Treatment with Pirlimycin Hydrochloride. *J Am Vet Med Assoc*. 234:1437-1446.
11. Apparao, M.D., P. L., Ruegg, A. Lago, S. Godden, R. Bey, and K. Leslie. 2009. Relationship between in vitro test results and treatment outcomes for Gram-positive mastitis pathogens following treatment with Cephapirin sodium. *J Dairy Sci*. 92: 2589-2597
12. Pantoja, J. C. F., C. Hulland, and P. L. Ruegg. 2009. Dynamics of somatic cell counts and intramammary infections across subsequent lactations. *Prev. Vet. Med*. 90:43-54.
13. Rodrigues, A.C. O' L. D. Cassoli' P. F. Machado' and P.L. Ruegg. 2009. Short Communication: A Cow-Side Test to Estimate Somatic Cell Count. . *J Dairy Sci* 92:990-995.
14. R. D. Bade, D. J. Reinemann, M. Zucali, P. L. Ruegg, and P. D. Thompson. 2009. Interactions of Vacuum, b-phase Duration, and Liner Compression on Peak Milk Flow Rate in Dairy Cows. *J Dairy Sci* 92:913-921.
15. Ruegg, P.L., 2009. Management of Mastitis on Organic and Conventional Dairy Farms. *J. Anim Sci*. 87:43-55.
16. Pantoja, J. C. F., C. Hulland, and P. L. Ruegg. 2009. Somatic cell count status across the dry period as a risk factor for the development of clinical mastitis in subsequent lactations *J Dairy Sci* 92: 139-148.
17. Ruegg, P.L., 2008. The quest for the perfect test: phenotypic versus genotypic identification of coagulase negative Staphylococci associated with bovine mastitis. *Vet Micro*. Doi:10.1016/j.vet-mic.2008.09.013
18. Cho, S., C.P. Fossler, F. Diez-Gonzalez, S. J. Wells, C. W. Hedberg, J. B. Kaneene, P. L. Ruegg, L. D. Warnick, and J. B. Bender. 2007. Antimicrobial susceptibility of shiga toxin-producing *Escherichia coli* isolated from organic dairy farms, conventional dairy farms, and county fairs in Minnesota. *Foodborne Path* 4:178-186.
19. Pol M, and P. L. Ruegg. 2007. Relationship between antimicrobial usage and antimicrobial susceptibility of Gram-positive mastitis pathogens. *J Dairy Sci* 90:262-273.
20. Pol M, and P. L. Ruegg. 2007. Treatment practices and quantification of antimicrobial usage in conventional and organic dairy farms in Wisconsin. *J Dairy Sci* 90:249-261.

21. Ray KA, LD Warnick, R Mitchell, JB Kaneene, PL Ruegg, SJ Wells, CP Fossler, Halbert LW, and K May. 2006. Antimicrobial susceptibility of Salmonella from organic and conventional Dairy Farms. *Journal of Dairy Science* 89: 2038-2050.
22. Cho, S. J. B. Bender, F. Diez-Gonzalez, CP Fossler, CW Hedberg, JB Kaneene, PL Ruegg, LD Warnick, and SJ Wells. 2006. Prevalence and characterization of Escherichia coli O157 isolates from Minnesota dairy farms and county fairs. *J Food Prot* 69:252-259.
23. Halbert LW, JB Kaneene, PL Ruegg, LD Warnick, SJ Wells, Mansfield LS, CP Fossler, AM Campbell and AM Geiger-Zwald. Evaluation of antimicrobial susceptibility patterns in Campylobacter spp isolated from dairy cattle and farms managed organically and conventionally in the Midwestern and northeastern United States. *J Am. Vet. Med. Assoc.* 2006 Apr 1;228(7):1074-81
24. Hoe FGH and PL Ruegg. 2006. Opinions and practices of Wisconsin dairy producers about biosecurity and animal well-being. *J Dairy Sci.* 89:2297-2308
25. Halbert LW, JB Kaneene, Linz J, Mansfield LS, D Wilson , PL Ruegg, LD Warnick, SJ Wells, CP Fossler, AM Campbell and AM Geiger-Zwald . 2005. Genetic mechanisms contributing to reduced tetracycline susceptibility of Campylobacter isolated from organic and conventional dairy farms in the Midwestern and Northeastern United States. *Food Prot.* 2006 Mar;69(3):482-488.
26. Halbert LW, JB Kaneene, Mansfield LS, PL Ruegg, LD Warnick, SJ Wells, CP Fossler , AM Campbell and AM Geiger-Zwald . 2005. The comparison of automated microbroth dilution and agar dilution for antimicrobial susceptibility of Campylobacter jejuni isolated from dairy sources. *J Antimicrobial Chemotherapy* 56:686-691.
27. Hoe FGH and PL Ruegg. 2005. Relationship between antimicrobial susceptibility of clinical mastitis pathogens and treatment outcomes. *J Am. Vet. Med. Assoc.* 227:1461-1468.
28. Fossler CP, SJ Wells, JB Kaneene, PL Ruegg, LD Warnick, JB Bender, LE Eberly, SM Godden and LW Halbert. 2005. Herd-level factors associated with isolation of Salmonella in a multi-state study of conventional and organic dairy farms. I. Salmonella shedding in cows. *Prev. Vet Med.* 70:257-277.
29. Fossler CP, SJ Wells, JB Kaneene, PL Ruegg, LD Warnick, JB Bender, LE Eberly, SM Godden, and LW Halbert. 2005. Herd-level factors associated with isolation of Salmonella in a multi-state study of conventional and organic dairy farms. II. Salmonella shedding in calves. *Prev. Vet Med.* 70:279-291.
30. Silva B, DZ Caraviello, ACO Rodrigues and PL Ruegg. 2005. Evaluation of Petrifilm™ for isolation of Staphylococcus aureus from milk samples. *J Dairy Sci.* 88:3000-3008.
31. Rodrigues ACO, DZ Caraviello and PL Ruegg. 2005. Management and Financial Losses of Wisconsin Dairy Herds Enrolled in Self-Directed Milk Quality Teams. *J. Dairy Sci.* 88 2660-2671.
32. Rodrigues ACO and PL Ruegg. 2005. Actions and Outcomes of Wisconsin Dairy Farms Completing Milk Quality Teams. *J. Dairy Sci.* 88 2672-2680.
33. Caraviello DZ, KA Weigel KA, GE Shook GE and PL Ruegg. 2005. Assessment of the Impact of Somatic Cell Count on Functional Longevity in Holstein and Jersey Cattle Using Survival Analysis Methodology. *J. Dairy Sci.*, 88: 804-811.

34. Fossler CP, SJ Wells, JB Kaneene, PL Ruegg, LD Warnick, LE Eberly, SM Godden , LW Halbert, AM Campbell, CA Bolin and AM Geiger-Zwald . 2005. Cattle and environmental sample-level factors associated with the presence of Salmonella in a multi-state study of conventional and organic dairy farms. *Prev Vet Med* 67:39-53.

Invited Papers in Conference Proceedings – last 3 years

- Ruegg, P.L. 2011. Mastitis in Small Ruminants. *Proc. Am. Assoc. Bovine Pract.* Sept 22-25, 2011. St. Louis MO
- Ruegg, P.L. 2011. Tratamiento de las mastitis clinicas: factores que influyen en el. *Proc. XVI. Congreso Internacional ANEMBE de Medicina Bovina.* May 11-13, Avila, Spain.
- Ruegg, P.L. 2011. Supervision de programas de control de mastitis: aspectos practicos. *Proc. XVI. Congreso Internacional ANEMBE de Medicina Bovina.* May 11-13, Avila, Spain.
- Ruegg, P.L. 2011. Heifer Mastitis – How to Help Heifers Calve Clean. *Proc. of Dairy Calf & Heifer Conference, Lake Geneva, WI.* April 5-6, 2011
- Ruegg, P.L. 2011. Monitorando a mastite, qualidade do leite e desempenho da ordenha. *Proc. XV Curso Novos Enfoques na Produção e Reprodução de Bovinos.”* March 17-18, Uberlandia, MG, Brazil.
- Ruegg, P.L. 2011. Tratamento de mastite clínica: o que as pesquisas sugerem? . *Proc. XV Curso Novos Enfoques na Produção e Reprodução de Bovinos.”* March 17-18, Uberlandia, MG, Brazil.
- Ruegg, P.L. 2010. Mastitis in Dairy Sheep. In *Proc. of 16th Great Lakes Dairy Sheep Symposium.* November 12, 2010 Eau Claire, WI
- Ruegg, P.L. 2010. Making better mastitis treatment decisions. *Proc. NMC, Regional Meeting, Sept 9, 2010., Grand Rapids, MI.*
- Ruegg, P.L. 2010. The application of evidence based medicine to mastitis therapy. *World Buiatrics Congress, Santiago Chile.* November 14-18, 2010.
- Ruegg, P.L. 2009. On farm culturing for Better Milk Quality. *Proc. Western Dairy management Conference, Reno, NV, 2009.*
- Ruegg, P.L. 2009. Taking mastitis control to the next level. *Proc. NMC, Regional Meeting, May 2009, Harrisburg, PA*
- Ruegg, P.L., 2008. Mastitis and Milk Quality. *10th Pan-American Dairy Congress.* San Jose, Costa Rica, April 9-11th, 2008.
- Ruegg, P.L., 2008. Bridging the DVM and PhD Gap. *Bioethics Symposium.* July 8, 2008, ADSA/ASAS, Indianapolis, IN *J Dairy Sci* 91:303.
- Ruegg, P.L., 2008. Mastitis Control on Organic and Traditional Dairies. *Joint lactation biology and triennial lactation symposium, 9th Intl. Workshop Biology of Lactation in Farm Animals & Lactation Biology Symposium.* July 11, 2008. *J Dairy Sci* 91:619.

Invited Book Chapters & Other

- Ruegg, P. L. 2011. Managing Mastitis and Producing High Quality Milk. Chapter 18 in *Dairy Cattle Production Medicine.* C. Risco and P. Melendez, (editors), Wiley-Blackwell Publishing, LTD.
- Ruegg PL. *Udder Diseases.* Merck Veterinary Manual. 10^h Edition. Merial. 2009.

- Ruegg, PL. Producing High Quality Goat Milk. 2008.. WI Dept. Ag. Trade & Consumer Protection.
- Ruegg, PL. Guest Editor – Veterinary Clinics of North America, Food Animal Practice. Barnyard Epidemiology and Assessment of Performance. Vol 22, March 2006
- Ruegg, PL. Basic epidemiologic concepts related to assessment of animal health and performance. Chap 1. Veterinary Clinics of North America, Food Animal Practice. Barnyard Epidemiology. 2006:22:1-19.
- Ruegg PL. Udder Diseases. Merck Veterinary Manual. 9th Edition. Merial. 2003
- Ruegg, PL. Investigation of Mastitis Problems on Farms. Chap 2 in Veterinary Clinics of N. America – Mastitis. Sears P., editor 2003. Harcourt Health Sciences. WB Saunders, Philadelphia.
- Ruegg, PL. Dairy Cattle Health and Production. Chapter 6 in Herd Health, Food Animal Production Medicine 3rd edition. Radostits OM, editor 2001. Harcourt Health Sciences. WB Saunders, Philadelphia.

Contributed papers and abstracts – last 2 years

- L. Oliveira, C. Hulland and P. L. Ruegg. 2011. Bacteriological cure of clinical mastitis cases in Wisconsin dairy herds. – preliminary results. Proc. 50th Ann., Meeting NMC., Arlington VA, Jan, 23-26, 2011.
- J. Pantoja, D. Rhoda, N. Cook and P.L. Ruegg. 2011. Monitoring clinical mastitis using Dairy Comp 305. Proc. 50th Ann., Meeting NMC., Arlington VA, Jan, 23-26, 2011.
- Ruegg, P.L. 2011. Presidents report. Proc. 50th Ann., Meeting NMC., Arlington VA, Jan, 23-26, 2011.
- Oliveira, L., A. C. O. Rodrigues, C. Hulland and P.Ruegg. 2010. Use of incubation and Petrifilm to enhance recovery of Staphylococcus aureus from cases of subclinical mastitis. Proc. 49th Ann., Meeting NMC., Albuquerque, NM, Jan, 31- Feb 3, 2010.
- Pantoja, J. C. F., M. A. Silva, D. J. Reinemann, and P.L. Ruegg. 2010. Factors associated with coliform count in raw bulk milk. Proc. 49th Ann., Meeting NMC., Albuquerque, NM, Jan, 31- Feb 3, 2010.
- Silva, M.A., A. CO. Rodrigues, and P.L. Ruegg. 2010. Assessment of Milking Unit Hygiene. Proc. 49th Ann., Meeting NMC., Albuquerque, NM, Jan, 31- Feb 3, 2010.
- Pinzon-Sanchez, C. C. Hulland and P.L. Ruegg. 2010. Post treatment outcomes of clinical mastitis on commercial dairy farms. J Dairy Sci 93:79.
- Ruegg, P.L., C. Hulland and H. Khatib. 2010. Relationship between intramammary treatment using pirlimycin hydrochloride and lincosamide resistance. Pp 633-638 In Mastitis Research into Practice, Proc. 5th IDF Mastitis Conference, March 21-24, 2010, Christchurch, NZ. Edited by J.E. Hillerton.
- Apparao, M.D., P. L. Ruegg, A. Lago, S. Godden, R. Bey and K. E. Leslie. 2009. Single-drug and Multi-drug Resistance Exhibited by Gram-positive Mastitis Pathogens. Proc. Am. Assoc. Bov. Prac. 42:208.
- Cabrera, V. E., J. Pantoja, P. Ruegg and G. Shook. 2009. Decision making for early post-partum subclinical mastitis. J Dairy Sci 92:201.

- Oliveira, L. H. Langoni, and P.L.Ruegg. 2009. Risk factors for multi-drug resistance of *Staphylococcus aureus* obtained from cases of mastitis. *J Dairy Sci* 92:42.
- Oliveira, L., C. Hulland and P.Ruegg. 2009. Prevalence of Enterotoxin Genes in *Staphylococcus aureus* recovered from cases of subclinical Proc. 48th Ann., Meeting NMC., Charlotte, NC, Jan, 25-28, 2009.
- Moraleda, G.R., L. Reilly, R. Panzalis, M. Haugen and P. Ruegg. 2009. Milking performance of dairy goats in Wisconsin. Proc. 48th Ann., Meeting NMC., Charlotte, NC, Jan, 25-28, 2009.
- Lago, A, S. Godden, R. Bey, .P Ruegg, and K. Leslie. 2009. Effect of the Selective Treatment of Clinical Mastitis Based in On-Farm Culture Results on the Risk to Receive Secondary Therapy, Days to Clinical Cure and Days Out of the Tank. Proc. 48th Ann., Meeting NMC., Charlotte, NC, Jan, 25-28, 2009.
- Lago, A, S. Godden, R. Bey, .P Ruegg, and K. Leslie. 2009. Effect of the Selective Treatment of Clinical Mastitis Based in On-Farm Culture Results on Clinical Mastitis Recurrence, Somatic Cell Count, Milk Production and Culling.. Proc. 48th Ann., Meeting NMC., Charlotte, NC, Jan, 25-28, 2009.
- Ruegg, P.L. 2009. Risk factors for recurrence of clinical mastitis. Proc. 48th Ann., Meeting NMC., Charlotte, NC, Jan, 25-28, 2009.
- Sobreira, N. M., J. C. F. Pantoja and P. Ruegg. 2009. Daily Variability in Somatic Cell Count of Dairy Goats and Cows. Proc. 48th Ann., Meeting NMC., Charlotte, NC, Jan, 25-28, 2009.

Active Current Research and Extension Projects

- 10/01/11 to 9/30/14. USDA Hatch funding. Indicators of Animal Wellbeing on organic and conventional dairy farms. P.L. Ruegg (PI).
- 9/1/10 to 8/31/12. USDA ISE. Understanding and Mitigating Potential Food Safety Risks Associated with Smallholder Farms in Kosovo and the United States. P.L. Ruegg (PI), K. Nielsen (co-PI).
- 3/1/2010 to 7/1/2012. WI Dept. Agriculture Trade and Cons. Protection. Improving Quality and Safety of Farmstead Dairy Products by Development of Risk Assessment Based Milk Quality Production Plans. P.L. Ruegg (PI).
- 1/1/10 to 12/31/14 USDA AFRI. An integrated approach to improving dairy cow fertility. Cabrera, V., P. Fricke, P. Ruegg, R. Shaver, K. Wiegel and M. Wiltbank (co-PIs). University of Wisconsin, Madison.
- 10/01/08 to 9/30/12, USDA, NRI, IOP. Impact Of Organic Management On Dairy Animal Health & Well-Being. Ruegg, PL, (PI), Y. Schukken, L. Tikofsky, M. Gamroth and C. Benbrook (Co-PIs)