

References

- Abboud, Lelia. 2002. "Meat Inspector Grills Industry," *Wall Street Journal*, Dec. 3, p. A4.
- Akerlof, George A. 1970. "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," *Quarterly Journal of Economics* 84: 488-500.
- Beef Food Industry Safety Council. 2003. *What is the Beef Industry Food Safety Council?* <http://www.bif-sco.org/about.htm>
- Bell, B.P., M. Goldoft, P. M. Griffin, M. A. Davis, D. C. Gordon, P. I. Tarr, C. A. Bartleson, J. H. Lewis, T. J. Barrett, and J. G. Wells. 1994. "A Multistate Outbreak of *Escherichia coli* O157:H7-Associated Bloody Diarrhea and Hemolytic Uremic Syndrome from Hamburgers: The Washington Experience," *Journal of the American Medical Association* 272: 1349-1353.
- Biela, Timothy, Vice President of Food Safety and Quality Assurance, Texas American Foodservice Corporation. Interviews in 2001, 2002 and 2003.
- Bisaillon, J.-R., R. Charlebois, T. Feltmate, and Y. Labbe. 1997. "HACCP, Statistical Process Control Applied to Postmortem Inspection and Risk Analysis in Canadian Abattoirs," *Dairy, Food, and Environmental Sanitation*, 17: 150-155.
- Bogetoft, Peter, and Henrik Ballebye Olesen. 2003. "Incentives, Information Systems and Competition," *American Journal of Agricultural Economics*, 85(1): 234-247.
- Boland, Michael, Dana Peterson-Hoffman, and J.A. (Sean) Fox. 2001. "Post Implementation Costs of HACCP and SPCPs in Great Plains Meat Plants," *Journal of Food Safety*. 21:195-204.
- Brodziak, Mike, Director of Customer Services, Frigoscandia Equipment, FMC FoodTech. Interviews in 2001 and 2002.
- Bryan, Ralph T., Robert W. Pinner, Robert P. Gaynes, C. J. Peters, Meredith A. Hickson, and Judith R. Aguilar. 1994. *Addressing Emerging Infectious Threats: A Prevention Strategy for the United States*, (Atlanta, GA: The Centers for Disease Control and Prevention).
- Buzby, Jean C., Paul D. Frenzen, and Barbara Rasco. 2001. *Product Liability and Microbial Foodborne Illness*, U.S. Department of Agriculture, Economic Research Service, Agricultural Economic Report No. 799.
- Cargill. 1995. "Frigoscandia, Cargill and Excel Receive USDA Approval for Steam Pasteurization of Fresh Beef," *Press Release*, Dec. 6, <http://www.cargill.com/today/releases/12061995.htm>
- Cargill. 1997. "Cargill to Install Steam Pasteurization System in its North American Beef Plants by June 1," *Press Release*, May 17, <http://www.cargill.com/today/releases/0517b1997.htm>
- Carlton, Dennis, and Jeffery Perloff. 1994. *Modern Industrial Organization* (New York: Harper Collins College Publishers)
- Caswell, Julie A., and Eliza M. Mojduszka. 1996. "Using Information Labeling to Influence the Market for Quality in Food Products," *American Journal of Agricultural Economics* (78): 1248-1253.
- Caswell, Julie A., and Tanya Roberts. 1994. "Vertical Quality Control Systems: A Potential Marketing Advantage for Cooperatives," pp. 145-169, in *Competitive Strategy Analysis for Agricultural Marketing Cooperatives*, ed. Ronald W. Cotterill (Boulder, CO: Westview Press).
- Centers for Disease Control. 2002. "Preliminary FoodNet Data on the Incidence of Foodborne Illnesses—Selected Sites, United States, 2001," *Morbidity and Mortality Weekly Report*, April 19/51(15):325-329.
- Centers for Disease Control and Prevention. 1993. Editors introduction, *Morbidity and Mortality Weekly Report*, 42(14): 257. <http://www.cdc.gov/mmwr>
- Cohen, Wesley. 1995. "Empirical Studies of Innovative Activity" in 1995. *Handbook of the Economics of Innovation and Technological Change*, Paul Stoneman ed. (Oxford, UK: Blackwell Publishers), pp. 182-264.

- Connor, John, and William Schiek. 1997. *Food Processing, An Industrial Powerhouse in Transition* (New York: John Wiley & Sons)
- Darby, Michael R., and Edi Karni. 1973. "Free Competition and the Optimal Amount of Fraud," *Journal of Law and Economics* 16(1): 67-88
- Davis, M., Osaki, D. Gordon, et al. 1993. Update: Multistate Outbreak of *Escherichia coli* O157:H7 Infections from Hamburgers—Western United States, 1992-1993. *Morbidity and Mortality Weekly Report*, 42(4): 258-263. <http://www.cdc.gov/mmwr/PDF/wk/mm4214.pdf>
- Economic Research Service. 2003. Industry Food Safety Actions: Unconventional Technologies/Irradiation (Briefing Room). <http://www.ers.usda.gov/Briefing/IndustryFoodSafety/unconventech/>
- Economic Research Service. 2001. "ERS Estimates Foodborne Disease Costs at \$6.9 Billion per Year" <http://www.ers.usda.gov/Emphases/SafeFood/features.htm#start>
- Elbasha, Elamin, and T. Lynn Riggs. 2003. "The Effects of Information on Producer and Consumer Incentives to Undertake Food Safety Efforts: A Theoretical Model and Policy Implications," *Agribusiness: An International Journal* 19(1): 29-42.
- Eskin, Sandra B., Nancy Donley, Donna Rosenbaum, and Karen Taylor Mitchell. 2003. Ten Years After the Jack-in-the-Box Outbreak—Why Are People Still Dying From Contaminated Food? http://www.safetables.org/pdf/STOP_Report.pdf
- Fingerhut, K., P. Zhang, J.A. Fox, and M.A. Boland. 2001. "Consumer Preferences for Pathogen-Reducing Technologies," *Journal of Food Safety* 21: 97-110.
- Freeman, Chris. 1994. "The Economics of Technical Change," *Cambridge Journal of Economics*, 18: 463-514.
- Frigoscandia Distribution AB. 2002. Recipes for Success, excerpts taken for the website: <http://www.frigoscandiadistribution.com>.
- FSNet. 2003. "Beef Industry Food Safety Council Steering Committee Meeting," Food Safety Network Listserve, April 7, archived at <http://131.104.232.9/fsnet-archives.htm>.
- Fuglie, Keith, Nicole Ballenger, Kelly Day, Cassandra Klotz, Michael Ollinger, John Reilly, Utpal Vasavada, and Jet Lee. 1996. *Agricultural Research and Development, Public and Private Investments Under Alternative Markets and Institutions*, U.S. Dept. Agr., Econ. Res. Serv., AER-735.
- Gill, Collin O. 1999. "HACCP: by Guesswork or by the Numbers?" *Food Quality* (6): 28-32.
- Golan, Elise, Barry Krissoff, Fred Kuchler, Ken Nelson, Greg Price, and Linda Calvin. 2003. "Traceability in the U.S. Food Supply: Deadend or Superhighway?" *Choices* (2nd Quarter) <http://www.choicesmagazine.org/>
- Golan, Elise, Fred Kuchler, and Lorraine Mitchell (with contributions from Catherine Green and Amber Jessup). 2000. *Economics of Food Labeling*, U.S. Dept. Agr., Econ. Res. Serv., AER-793.
- Hooker, Neal H., Rodolfo M. Nayga Jr., John W. Siebert, 1999. "Producing, Preserving, and Marketing Food Safety Attributes—Preserving and Communicating Food Safety Gains," *American Journal of Agricultural Economics* 81: 1102-06.
- International Commission on Microbiological Specifications for Foods (ICMSF) Working Group on Microbiological Risk Assessment. 1998. "Potential Application of Risk Assessment Techniques of Microbiological Issues Related to International Trade in Food and Food Products," *J. of Food Protection* 61:1075-1086.
- Jin, Ginger Zhe, and Phillip Leslie. 2003. "The Effect of Information on Product Quality: Evidence from Restaurant Hygiene Grade Cards." *Quarterly Journal of Economics* 118(2): 409-451.
- Kagan, R.A., N. Cunningham, and D. Thornton. Forthcoming. "Explaining Corporate Performance: How Does Regulation Matter?" *Law and Society Review*.
- Kamein, M.I., and N.L. Schwartz. 1970. "Market Structure, Elasticity of Demand, and Incentive to Invent," *Journal of Law and Economics* 13: 241-52.
- Kuchler, Fred. 2001. "Efficiency and Standard Setting in the Market for Processed Meats" *Consumer Interests Annual*, vol 47.

- Leising, Jerome, SPS Co-inventor, Vice President at Excel and Director of Research and Development at Cargill/Excel. Interview in November 2002 (now Vice President of Meat Sector R&D, Technology Center, General Mills)
- Levin, R.C., A.K. Klevorick, R.R. Nelson, and S.G. Winter. 1987. "Appropriating the Returns from Industrial R&D" *Brookings Papers on Economic Activity*, 783-820.
- Lusk, Jayson L., and Darren Hudson. Forthcoming. "Willingness-to-Pay Estimates and Their Relevance to Agribusiness Decision Making," *Review of Agricultural Economics*.
- MacDougall, Eric, Head of MacDougall Risk Management. Interview in November 2002.
- MacDonald, James M., Michael E. Ollinger, Kenneth E. Nelson, and Charles R. Handy. 2000. *Consolidation in U.S. Meatpacking*, U.S. Dept. Agr., Econ. Res. Serv., AER-785
- Mansfield, E., A. Romeo, M. Schwartz, D. Teece, S. Wagner and P. Brach. 1982. *Technology Transfer, Productivity, and Economic Policy* (New York: Norton)
- Martin, S.A., and D.W. Anderson. 2000. "HACCP Adoption in the U.S. Food Industry." In L.J. Unnevehr, ed., *The Economics of HACCP: Studies of Costs and Benefits*, St. Paul: Eagan Press.
- Mead, Paul S., Laurence Slutsker, Vance Dietz, Linda F. McCaig, Joseph S. Bresee, Craig Shapiro, Patricia M. Griffin, and Robert V. Tauxe. 1999 "Food-Related Illness and Death in the United States." *Emerging Infectious Diseases* 5(5):607-625, accessed 10/8/99 <http://www.cdc.gov/ncidod/eid/vol5no5/mead.htm>.
- Metcalf, Stan. 1995. "The Economic Foundations of Technology Policy: Equilibrium and Evolutionary Perspectives," pp. 410-512, in *Handbook of the Economics of Innovation and Technological Change*. Ed. Paul Stoneman (Oxford, UK: Blackwell Publishers Ltd.).
- Mintzberg, Henry. 2002. "Managing to Innovate," pp. 141-152, in *Leading for Innovation*, eds. Frances Hesselbein, Marshall Goldsmith, and Iain Somerville (San Francisco, CA: Jossey-Bass, Wiley).
- Morris, Charles E. 1999. "Multiple Hurdles Minimize Pathogens," *Food Engineering*, <http://foodengineeringmag.com>.
- Murphy, Dan. 2003. "FSIS to Post Names of Producers with Violative Residues on Internet," January 6. www.meatingplace.com/DailyNews/.
- National Academy of Sciences. 2003. *Scientific Criteria to Ensure Safe Food*. <http://books.nap.edu/books/030908928X/html/index.html>
- Nutsch, A.L., R.K. Phebus, M.J. Riemann, D.E. Schafer, J.E. Boyer, Jr., R.C. Wilson, J.D. Leising, and C.L. Kastner. 1997. "Evaluation of Steam Pasteurization Process in a Commercial Beef Processing Facility," *J. of Food Protection*, 60(5): 485-492.
- Nutsch, A.L., R.K. Phebus, M.J. Riemann, J.S. Kotrola, R.C. Wilson, and T.L. Brown. 1998. "Steam Pasteurization of Commercially Slaughtered Beef Carcasses: Evaluation of Bacterial Populations at Five Anatomical Locations," *J. of Food Protection*, 61(5): 571-577.
- Ollinger, Michael, and Danna Moore. Forthcoming. *Food Safety Investment Expenditures and Choices in the Meat and Poultry Industries*
- Ollinger, Michael, Danna Moore, and Ram Chandran. 2004. *Plant Investment in Food Safety Technology: Findings from the First National Survey of Food Safety Expenditures and Equipment Use and Practices in the Meat and Poultry Industries*, Agricultural Economic Report. U.S. Department of Agriculture, Economic Research Service. Forthcoming.
- Organisation for Economic Co-operation and Development. 1997. *The Measurement of Scientific and Technological Activities, Proposed Guidelines for Collecting and Interpreting Technological Innovation Data (Oslo Manual)*, Jan.1, <http://www.oecd.org/pdf/M00018000/M00018312.pdf>
- Page, Greg. 1999. *Testimony of Cargill, Inc. on Conditions in the Livestock Industry*, House Committee on Agriculture, Feb. 10, <http://www.cargill.com/today/speeches/page.htm>

- Phebus, Randall K., Associate Professor, Animal Sciences & Industry, Kansas State University. Interview in November 2002. A description of the Food Science Institute's BS and MS programs can be found at <http://foodsci.k-state.edu/academics/distance/grad-courses.html>.
- Phebus, R.K., A.L. Nutsch, D.E. Schafer, R.C. Wilson, M.J. Riemann, J.D. Leising, C.L. Kastner, J.R. Wolf, and R.K. Prasai. 1997. "Comparison of Steam Pasteurization and Other Methods for Reduction of Pathogens on Surfaces of Freshly Slaughtered Beef," *Journal of Food Protection*, 60(5): 476-484.
- Porter, Michael E. 1998. *Competitive Advantage: Creating and Sustaining Superior Performance* (New York, NY: The Free Press, Simon and Schuster).
- Porter, Michael E., and Claas van de Linde. 1995. "Green and Competitive: Ending the Stalemate," *Harvard Business Review* (September-October): 120-134.
- Powell, M.R., E.D. Ebel, A.T. Hogue, and W.D. Schlosser. 2001. "The Promise and Challenge of Food Safety Performance Standards," *Dairy, Food, and Environmental Sanitation* (21): 582-590.
- Pray, Carl, and Keith Fuglie. 2000. "The Private Sector and International Transfer of Agricultural Technology," in K. O. Fuglie and D. Schimmelpfennig, eds., *Public-Private Collaboration in Agricultural Research* (Ames Iowa: Iowa State University Press).
- Pruett, W. Payton, Jr., Timothy Biela, Charles P. Lattuada, Peter M. Mrozinski, W. Mark Barbour, Russell S. Flowers, William Osborne, James O. Reagan, David Theno, Victor Cook, Ann Marie McNamara, and Bonnie Rose. 2002. "Incidence of Escherichia coli O157:H7 in Frozen Beef Patties Produced Over an 8-Hour Shift." *Journal of Food Protection* 65 (9): 1363-1370.
- Roberts, Tanya, Scott A. Malcolm, and Clare A. Narrod, 1999, Probabilistic Risk Assessment and Slaughterhouse Practices: Modelling Contamination Process Control in Beef Destined for Hamburger, pp. 809-815, *Probabilistic Safety Assessment PSA '99: Risk-Informed Performance-Based Regulation in the New Millennium*, ed. Prof. Mohammad Modarres, American Nuclear Society: La Grange Park, IL. Also posted on ERS website: <http://www.ers.usda.gov/briefing/IndustryFoodSafety/pdfs/psa9.pdf>
- Roberts, Tanya, Alwynelle Ahl, and Robert McDowell. 1995. "Risk Assessment for Foodborne Microbial Hazards." *Tracking Foodborne Pathogens from Farm to Table: Data Needs to Evaluate Control Options*. T. Roberts, H. Jensen, and L. Unnevehr, eds., U.S. Department of Agriculture, Economic Research Service, MP-1532, pgs. 95-115. Available on ERS website: <http://www.ers.usda.gov/publications/MP1532/mp1532.pdf>
- Roberts, T., R.A. Morales, C.-T.J. Lin, J.A. Caswell, and N.H. Hooker, 1997. "Worldwide Opportunities to Market Food Safety," pp. 161-178, *Government and the Food Industry: Economic and Political Effects of Conflict and Cooperation*, eds. Tim Wallace and William Schroder, (Dordrecht, The Netherlands: Kluwer Academic Publisher).
- Roberts, Tanya, Clare A. Narrod, Scott A. Malcolm, and Mohammad Modarres. 2001. "An Interdisciplinary Approach to Developing a Probabilistic Risk Analysis Model: Applications to a Beef Slaughterhouse," pp. 1-23, *Interdisciplinary Food Safety Research*, eds. Neal H. Hooker and Elsa A. Murano (Boca Raton, FL: CRC Series in Contemporary Food Science).
- Roberts, Tanya, and Robert Pinner. 1990. "Economic Impact of Disease Caused by *Listeria monocytogenes*," pp. 137-149, *Foodborne Listeriosis*, eds. A.J. Miller, J.L. Smith, and G.A. Somkuti (United States: Society for Industrial Microbiology).
- Salay, Elisabete, Julie A. Caswell, and Tanya Roberts. 2003. "Survey Instrument for Case Studies of Food Safety Innovation." Working Paper 2003-06, Department of Resource Economics, University of Massachusetts, Amherst.
- Schmookler, J. 1962. "Economic Sources of Inventive Activity," *Journal of Economic History* 22:1-10.
- Schmookler, J. 1966. *Invention and Economic Growth* (Cambridge, MA: Harvard University Press).
- Schumpeter, Joseph A. 1942. *Capitalism, Socialism, and Democracy* (New York: Harper).

- Schumpeter, Joseph A. 1934. *The Theory of Economic Development* (Cambridge, MA: Harvard University Press).
- Segerson, Katherine. 1999. "Mandatory Versus Voluntary Approaches to Food Safety," *Agribusiness*, 15: 53-70.
- Selame, E., and G. Kolligian. 1992. "The Coming Revolution in Private Label Brands," *Food Business* (Jan.6).
- Smith, Gary. 2003. *Progress in Food Safety: Toward a Safer Food Supply*, http://www.beef.org/documents/beef_supply.pdf
- Sofos, J., S.L. Kochevar, G.R. Bellinger, D.R. Buege, D.D. Hancock, S.C. Ingraham, J.B. Morgan, J.O. Reagan and G.C. Smith. 1999. "Sources and Extent of Microbiological Contamination of Beef Carcasses in Seven United States Slaughtering Plants," *J. of Food Protection*, 62: 140-145.
- Spence, A.M. 1984. "Cost Reduction, Competition, and Industry Performance" *Econometrica* 52: 101-21.
- Stoneman, Paul. 1995. *Handbook of the Economics of Innovation and Technological Change* (Oxford, UK: Blackwell Publishers Ltd)
- Theno, David, Senior Vice President for Quality and Logistics, Jack in the Box, interviews in 2001 and 2002.
- U.S. Department of Agriculture, Agricultural Marketing Service (AMS). 2000. "Technical Data Supplement (TDS) for the Procurement of Beef Special Trim, Boneless, Frozen for Further Processing, TDS-139 <http://www.ams.usda.gov/lsg/cp/beef/TDS-139%20DEC2000.pdf>).
- U.S. Department of Agriculture, Food Safety and Inspection Service. 1997. *Enhanced Facilities Database*. Washington, D.C.: U.S. Department of Agriculture.
- U.S. Department of Agriculture, Food Safety and Inspection Service. 1999. *Enhanced Facilities Database*. Washington, D.C.: U.S. Department of Agriculture.
- U.S. Department of Agriculture, Food Safety and Inspection Service. 2002. "Guidance for Minimizing the Risk of *Escherichia coli* O157:H7 and *Salmonella* in Beef Slaughter Operations" in Docket No. 00-022N, *E. coli* O157:H7 Contamination of Beef Products. <http://www.fsis.usda.gov/oppde/rdad/frpubs/00-022N/BeefSlaughterGuide.pdf>
- U.S. Department of Agriculture, Food Safety and Inspection Service. 1996. "Pathogen Reduction: Hazard Analysis and Critical Control Point (HACCP) Systems: Final Rule," *Federal Register*, July, includes page 38965.
- U.S. Department of Agriculture, Food Safety and Inspection Service. 2001. *Draft Risk Assessment of the Public Health Impact of Escherichia coli O157:H7 in Ground Beef* <http://www.fsis.usda.gov/OPPDE/rdad/FRPubs/00-023NReport.pdf>
- U.S. Department of Commerce, Bureau of the Census. 1999a. *Animal (Except Poultry) Slaughtering, 1997*. Part of 1997 Economic Census of Manufacturing Industry Series EC97M-3116A.
- U.S. Department of Commerce, Bureau of the Census. 1999b. *Meat Processed from Carcasses, 1997*. Part of 1997 Economic Census of Manufacturing Industry Series EC97M-3116B.
- U.S. Department of Commerce, Bureau of the Census. 1999c. *Poultry Processing, 1997*. Part of 1997 Economic Census of Manufacturing Industry Series EC97M-3116A.
- United States Patent #5,711,981. January 27, 1998. *Method for Steam Pasteurization of Meat*. Inventors: Wilson; Robert C. (Redmond, WA); Leising; Jerome D. (Shorewood, MN); Strong; John (Kirkland, WA); Hocker; Jon (Bothell, WA); O'Connor; Jerry (Issaquah, WA) Assignee: Frigoscandia Inc. (Redmond, WA) Appl. No.: 553852 Filed: November 6, 1995.
- United States Patent #5,976,005. November 2, 1999. *Apparatus for Steam Pasteurization of Meat*. Inventors: Wilson; Robert C. (Redmond, WA); Strong; John (Kirkland, WA); Hocker; Jon (Bothell, WA); O'Connor; Jerry (Issaquah, WA); Leising; Jerome D. (Shorewood, MN) Assignee: Frigoscandia Equipment Inc. (Redmond, WA) Appl. No.: 014358 Filed: January 23, 1998.

United States Patent #6,019,033. February 1, 2000.
Apparatus for Steam Pasteurization of Food.
Inventors: Wilson; Robert C. (Redmond, WA);
Leising; Jerome D. (Shorewood, MN); Strong;
John (Kirkland, WA); Hocker; Jon (Bothell, WA);
O'Connor; Jerry (Issaquah, WA) Assignee:
Frigoscandia, Inc. (Bellevue, WA) Appl. No.:
259036 Filed: February 26, 1999

Voldseth, Sonia. 2002. *Beef Industry at the Forefront
of Beef Safety Initiatives.* <http://www.beef.org>.

Walsh, V. 1984. "Invention and Innovation in the
Chemical Industry: Demand-Pull or Discovery-
Push?" *Research Policy* 13: 211-34.

Whiting, R.C. and R.L. Buchanan. 1997.
"Development of a Quantitative Model for
Salmonella enteritidis in Pasteurized Liquid Egg,"
International Journal of Food Microbiology,
36: 111-125.

Wilson, Craig, SPS co-inventor, Director of Special
Projects, Frigoscandia Equipment, interviews in
11/02 and 2001 (now Assistant Vice President for
Food Safety and Technology, Costco).

Wilson, R.C., and J.D. Leising. 1994. *Method and
Apparatus for Steam Pasteurization of Meats.*
U.S. Pat. Appl. 08/335,437 (7 Nov.).