

JAIRUS R. DAVID, Ph.D., IFT Fellow
Principal Consultant & Owner
JRD Food Technology Consulting, LLC

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FOOD TECHNOLOGY CONSULTING

JAIRUS DAVID, consultant brings 35+ years of extensive food industry experience with family-owned companies and large corporations - highly regulated baby food, infant formula, consumer-packaged goods (CPG), and food service. Open for both domestic and international assignments, and able and willing to collaborate with other consultants for synergy and results for implementation.

Jairus is a thought leader in the agro-food industry and authority on food preservation science, food safety and quality. He has worked with the food industry on food technologies, use of natural and clean label ingredients especially food preservatives for delivering premium food, and in developing food safety objectives and compliance, balancing applied research with process and quality optimization, and commercialization and launch of innovative products.

KNOWHOW

- Industrial Microbiology
- Thermal Process Design – Aseptic, Canning and Pasteurization
- Natural and Clean Label Antimicrobial Preservatives in Food
- Hurdle Technologies [Multifactorial “Gentler” Food Preservation]
- Food Safety

INDUSTRIAL SCIENCE & TECHNOLOGY EXPERIENCE

JRD FOOD TECHNOLOGY CONSULTING, LLC., Omaha, Nebraska

2019 – Present

Principal Consultant and Owner

Skill Set Used for Delivering Results for Clients:

- Thermal Process Design and Delivery for UHT-Sterilization and Ultra-Pasteurization of Fluids
 - Commissioning Runs for Low Acid Chilled/ESL Fillers, and Low Acid Aseptic/Ambient Fillers
 - Due Diligence and Data Package Required for FDA filing
 - Application of Natural and Clean Label Antimicrobial preservatives in RTE Dip, Dairy Products, and Pet Foods
 - Microbial Challenge Studies
 - Rapid Microbiology Testing for Low Acid Finished Product Release
 - Shelf-life Studies
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Conagra Brands is one of North America's largest packaged food companies with powerful branded name foods found in 99% of America's households, as well as a strong commercial foods business serving restaurants, private labels, and food service operations globally.

Senior Principal Research Scientist, Product Science, R&D, Conagra Brands 2010 - 2019

Provided leadership to scout, develop, and led a program on natural and clean label antimicrobials and novel processing technologies to provide competitive advantage and food protection.

- **Conagra Brands Natural Antimicrobial Program via Strategic Partnerships**

Lead and identified strategic partners -- University of Tennessee, Food Research Institute at University of Wisconsin, University of Nebraska, The Procter & Gamble Company (P&G), Corbion-Purac, Kemin, Chr. Hansen, Ganeden, Lallemand, DuPont-Danisco, Kerry, Florida Natural Foods, MicroEos, Third Wave Bioactives, Wenda, Vedeqsa, IsoAge, Agri-Neo, to build long term capability to bring new-to-world and known-to-world natural antimicrobials and delivery systems for food safety and extension of shelf life.

- *Journal of Food Protection Trends*, 2013. 33 (4): 241-250
- *Journal of Food Protection*, 2014. 77 (2): 269-275

- Teamed to complete **Conagra's first ever GRAS (Substances Generally Recognized as Safe) Self-Affirmation of a Natural Antimicrobial** - White Mustard Essential Oil (WMEO) in non-carbonated beverages, ketchup, sauces and gravies, and egg substitutes, with specific limits on its use level.

- *US FDA GRAS Notice: GRN No. 000442, August 28, 2012*
- *US Patent No. 8697150; Process of Extracting Isothiocyanates. Patent Granted April 15, 2014*
- *US Patent Application No. 20110244078; Mustard Compositions. Publication Date: October 6, 2011*
- World Intellectual Property Organization. International Application Publication No: WO 2013/163073 A1 **Solid Food Products and Methods of Their Preservation.** International Publication Date: Oct 31, 2013
 - *Journal of Food Protection*, 2013. 76 (4): 580-587
 - *Journal of Food Protection*, 2014. 77 (12): 2062-2068

- **Commercialization and launch of "All-Natural" Hebrew National Kosher Hot Dog [Food Safety Assurance]**

Teamed and liberated a monolith legacy brand by replacing six (6) approved legacy chemical ingredients with natural clean label ingredients including 3 antimicrobials for control of *Clostridium botulinum* and *Listeria monocytogenes*. Lead due-diligence to establish food safety equivalence in the new product; facilitated filing of patent.

- *Final US Patent Publication Number 20190261662. All-Natural Hot Dog. Publication Date: August 29, 2019. Product launched March of 2018*

- **Food Safety Risk Assessment and Relaunch of Sous-vide Refrigerated Meals**

Teamed and facilitated *Clostridium botulinum* challenge studies for understanding food safety risk. Verified thermal process design and delivery, pH impact for all SKUs -Beef, Pork and Chicken, and the need for use of clean label natural nitrite. Teamed and facilitated application of antimicrobial, USDA compliance and label change, and relaunch of products.

- **Odom’s Tennessee Pride - Refrigerated Fresh Pork Sausage [Spoilage Control & Shelf-Life Assurance]**

Teamed and validated and recommended use of clean label natural antimicrobial for reducing sporadic economic spoilage complaints due to microbial growth.

- *Applied and Environmental Microbiology*, 2014. 80 (17): 5178 - 5194 [Metagenomics, Source Tracking]
- *Food Technology*, 2015. 69 (1): 42-49 [Big Data Use in Food Protection]

- **Lofthouse - Natural Cookies [Mold Control & Shelf-Life Assurance]**

Teamed and validated and recommended replacement of potassium sorbate with natural clean label calcium propionate for launch of new natural line of product, mold-free for 14-21 days at ambient.

- **“Take and Bake at Home” Par-Baked Artisan Bread [Mold Control & Shelf-Life Assurance]**

New formula without antimicrobial moldy in 2-4 days at ambient. Teamed and validated and recommended use of clean label natural antimicrobials in binary combination (inclusion in raw dough, and post-process topical spray post cooling) for mold free 7-10 days ambient shelf life.

- **Mold Control & Shelf- Life Assurance of Co-Extruded Cereal Bar with Fruit Core (Dual Compartmentalized-Product, Intermediate Moisture Food, and Hurdle Technology)**

Several mold complaints due to xerophilic mold *Eurotium* spp on < 90-day fresh product from the field, given expected shelf life of 9 months. Teamed and validated and recommended use of clean label natural antimicrobial in dough and fruit core, *with* full compliance to post-bake cooling maximum temperature, and final target product a_w for mold free 12-month shelf life.

- **Commercialization & Launch of Natural Eggbeaters [Food Safety & Spoilage Control, Shelf-Life Assurance]**

Teamed and replaced chemical hydrogen peroxide (H_2O_2) used post-heat process for inactivation of spores of *Bacillus* spp and heat resistant *Enterococcus* spp in pasteurized refrigerated ESL South-Western Style Eggbeaters, with consumer-friendly natural antimicrobial. Lead due-diligence to establish spoilage-free 90-day refrigerated shelf life, method and order of addition of natural antimicrobial.

- Product launched January 2017

SPECIAL PROJECTS / DEEP DIVE TECHNICAL REVIEWS

1. **Sous-vide Products** – Technical Review, Risk Assessment and Recommendation
2. **High Pressure Processing** – Technology, US Market, and Challenges
3. **Refrigerated Meals** - Food Safety Risk Assessment for Low Acid - Sides, Dips and Meals
4. **Probiotics** – Efficacy and Applications for Different Temperature States -Shelf Stable, Dry, Frozen, Refrigerated and Aseptic

CONAGRA FOODS, Omaha, Nebraska**2008 – 2019 *continued*****Director, Microbiology and Food Forensic Laboratories, R&D, Conagra Foods**

2008 - 2010

Managed and lead 17-member Corporate Microbiology and Microphysical/Food Forensic Laboratories to test and provide actionable data and knowledge for Conagra plants, and commercial platforms - Conagra Mills, SpiceTec, and Lamb Weston. Lead applied research for methods development, spoilage analysis, validation and compliance.

- Teamed and realized one time **working capital saving of \$280,000 via inventory reduction** by decreasing incubation of finished product Snack Pack Puddings by 1 (one) day using newly validated Celsis Innovate instrument.
- Teamed with Procurement and realized a **36% cost saving** (\$399,666 vs. \$1.127 MM spend) via centralized purchasing for Microbiology and Chemistry laboratories at Omaha, and satellite laboratories at Menomonie, WI, Cranberry, NJ and Russellville, AK.

MEAD JOHNSON INFANT FORMULA, (Bristol-Meyer-Squibb), Evansville, Indiana 2006-2008

World's leading provider of science-based pediatric nutrition products including infant formula.

Technologies: Spray Drying, Post-Dry Blending, Cleanroom and environmental monitoring program for control of *Cronobacter sakazakii*; Retorting, and Aseptic for shelf stable liquid formulae.

Director, Global Operations Quality (US, Mexico, The Netherlands; Thailand, Philippines, and China)

Managed Global Quality Operations, Non-Conformance Metrics, Corrective Actions, and Change Control Process.

- **Lead a 417-person international team** at manufacturing plants in Michigan, Indiana, Mexico, The Netherlands, Thailand, Philippines and China, with 4 regional directors and 3 managers achieving quality agenda and metrics.
- Teamed and realized **\$ 4MM cost savings** via **16% reduction in global non-conformance write-off**, 2007 vs 2006. Developed and operationalized score card to monitor and reduce “write-offs” and for monthly reporting of market actions, non-conformances, and for sharing of Root Cause Analysis [RCA] and Corrective Action and Preventive Action [CAPA] best practices among the seven manufacturing plants in China, Indiana, Michigan, Mexico, The Netherlands, Philippines and Thailand.

RICH PRODUCTS CORPORATION, Buffalo, New York**2002 - 2006**

Leader in food service & restaurant operations in frozen toppings and icings, bakery, cakes, desserts.

Technologies: Frozen, Refrigerated, Bakery, Aseptic, Pasteurized, and Cold fill.

Director, Quality Systems for Product Development & Specifications

Managed 27-member team of regulatory, formula management system, microbiology, change control &

pilot plant services.

- Teamed and lead successful **technology transfer** of frozen non-dairy topping “Crema Neutra” to shelf stable aseptically-processed and packaged retail format for Latin America using Combibloc aseptic filler system.
- Facilitated consumer and marketing push for **lower trans-fat in bakery and dessert products** via risk analysis of ingredients, finished products and appropriate regulatory review for compliant labeling.
- Teamed, reviewed and implemented proper level and use of approved chemical **preservative** (Potassium sorbate) in Codex-regulated Asia Pac countries, in minimally processed frozen Toppings and Icings for control of mold growth.
- **Change Control Management.** Developed and implemented a framework for Change Control Management for frozen and aseptically processed foods – for new product development and launch (NPD), and to control yields, consistency and minimize failures due to big variance in product quality, product safety and performance and lost time and optimize opportunity cost.

GERBER BABY FOODS, (Sandoz Nutrition; Novartis; Nestle), Fremont, Michigan 1990-2002

Industry trusted leader in Infant Food and Nutrition producing Baby Foods and Baby Care items. Technologies: Retorting, Hot-Fill-Hold/Fill, Aseptic, Drum Drying, Bakery; FDA and USDA products.

Corporate Manager, Microbiology & Thermal Processing

Managed microbiology food safety, thermal processing, quality, regulatory, and lead cross-boundary team of Food Safety Council, and New Technology Council.

- Recipient of CEO’s award and plaque for **project leadership and cost saving**. Conducted experiments in lab and in manufacturing plants to challenge standard operating procedures (SOP) and eliminated hot water spray in sterilizer-cooler for acid-fruit juice and pureed products. Provided leadership and facilitated implementation at three (3) different plant locations, to realize cost savings of \$171,000 per annum, from steam and water recovery.
- Teamed and developed comprehensive plan to provide food-handling information to **Consumer Response** Department, to advice consumers how to handle remnant unused wet foods in opened- containers or reconstituted drum-dried cereals. Consumer complaint calls for mishandling of foods and potential for food spoilage declined from 4,400 per month in 1997 to fewer than 1500 per month in last quarter of 2000, representing 65% reduction.
[*Pediatric Basics*, 1996. Volume 76, Pages 1-2; *Pediatric Basics*, 1999. Volume 96, Pages 1-2.]
- Led plant and corporate team and designed **optimal thermal processes** for elimination of heat- induced pinking in still-retorted banana products. Facilitated re-launch at three (3) plants in Michigan, Arkansas, and North Carolina with appropriate safeguards, and FDA filing. Increased profitability of top selling product lines and restored consumer confidence.
- Proactively anticipated product compromise from environmental pathogenic bacteria from food contact, and food non-contact surfaces, drains and from lessons learned from Malt-O-

Meal Company Class 1 Recall of dry cereals tainted with *Salmonella agona*. Co-developed with Center for Food Safety and Silliker Laboratories and **implemented QA/Food Safety policy for environmental testing**, control and prevention of *Listeria*, Salmonellae and biofilm forming bacteria in dry cereal operations at 2 plants in Michigan and Arkansas.

- Identified predominant Enterobacteriaceae microflora to **validate potential presence of Salmonellae** associated with manufacture of dry flaked cereals via drum dryers at 2 different plant locations.
- Teamed and developed rapid methods for reduced incubation of low acid canned foods (LACF) from 10-14 days to 5-6 days followed by sub-culturing. This resulted in a one-time **cost saving of about \$1.7MM primarily via reduction in working capital** based upon inventory reduction for a company with net sales of \$1 billion.
- Teamed and developed novel and proprietary heat-processing method to **sterilize honey containing cereal** wet slurry for manufacture of drum dried flaked cereals free of *Clostridium botulinum* spores responsible for infant botulism. Provided leadership and facilitated value add and proper label claim.
- Developed and implemented cooling and storage procedures in manufacturing plants for **prevention and control of economic spoilage due to thermophilic spores** in select thermally processed low acid baby foods. Provided relief for Purchasing department in sourcing TS/FS (Total Thermophilic Spores to that of Flat Sour Spores) for sensitive ingredients such as starches and milk powders.

REAL FRESH ASEPTIC, INC. [Advanced Food Processing, LLC], Visalia, California 1985-1990

The three centers: Real Fresh (California) - Major Smith (Pennsylvania) - Land-O-Lakes (Minnesota). Innovation leader in low acid aseptic processing and packaging technologies – Dole Aseptic Metal Canners, Tetra Pak Aseptic Brik Fillers, ERCA/Conoffast Aseptic Cup Fillers, Aseptic Pouch Fillers. Direct steam, tubular and scraped surface heat exchangers.

Manufacturing Plant QA & Technical Services Manager

Managed 18-member Formulation/Batching, QC and Package Integrity Testing, Shelf-Life Studies, USDA and FDA inspection and compliance; union plant.

- Teamed with the National Food Processors Association (NFPA), Washington, DC, and became the first to establish best practices for **Extended Production Runs (EPRs) for low acid aseptic filler** ERCA Connofast. Stair-stepped plant runs from 8 to 120 hours (5 days) with intensive preventive maintenance, clean-up and sanitation, and environmental monitoring program (EMP). Increased productivity by 400% resulting in \$110,000 increase in weekly gross revenue.
- Teamed and developed Enzyme Modified Cheese (EMC) flavor using lipolytic and proteolytic enzymes and less expensive dairy ingredients, in “Martin Dole” aseptic processing and packaging of cheese sauce formulations in #10 cans. Achieved a **profit of \$3.30 per case** at a replacement ratio of 2 parts of cheddar cheese to 1 part of casein-cream EMC slurry.
- Designed and lead industrial experiments to evaluate efficiency of low acid aseptic filler to

produce hermetically sealed shelf stable plastic cups using 4 different lid stocks. Results were used for successful resolution of \$ 2MM litigation involving manufacturer, copacker and supplier of lid stocks and distributor of aseptic filler ERCA Connofast.

EDUCATION

- **DOCTOR OF PHILOSOPHY (Ph.D.), MICROBIOLOGY with THERMAL PROCESSING Emphasis.** University of California at Davis, Davis, CA. Departments of Bacteriology, and Food Science & Technology. Dissertation: *Kinetics of Inactivation of Bacterial Spores in a Computer-Controlled Reactor*. Major Professor: Dr. Richard Larry Merson. 1985.

Peer-Reviewed Journal Publications from Ph.D. Dissertation:

- David, J.R.D., and Merson, R.L. 1990. *Kinetic Parameters for Inactivation of Bacillus stearothermophilus at High Temperatures*. *Journal of Food Science*, Vol. 55 (2): Pages 488-493/515.
 - David, J.R.D., and Shoemaker, C.F. 1985. *The HTST Inactivation of Peroxidase in a Computer- Controlled Reactor*. *Journal of Food Science*, Vol. 50 (3): Pages 674-677.
 - David, J.R.D., and Shoemaker, C.F. 1985. *A Transducer for the Direct Measurement of Rates of Lethality During Thermal Processing of Foods*. *Journal of Food Science*, Vol. 50 (1): Pages. 223-225.
- **MASTER OF SCIENCE (M.Sc.), FOOD TECHNOLOGY.** UN/FAO, Central Food Technology Research Institute (CFTRI), Mysore, India. Thesis: *Biochemical Characterization of Buffalo Milk kappa- Casein*. 1977.
 - **BACHELOR OF SCIENCE (B.Sc.), AGRICULTURE.** University of Agricultural Sciences, Bangalore, India. Project: *Effect of Rhizobium Inoculation on Yield of Cowpea Seeds with Varying Doses of NPK Using Randomized Block Design*. 1975.

CERTIFICATIONS

- Certified Green Belt Facilitator, **Kepner-Tregoe Methodology: Problem Solving & Decision Analysis**. Delicias, Mexico, 2008
- **Certified Quality Auditor HACCP (CQA-HACCP)**, Certification # 316. American Society for Quality (ASQ), Buffalo, New York, 2006
- **Certified Quality Engineer (CQE)**, Certification # 47630. ASQ, Buffalo, New York, 2005
- **Certified Quality Manager (CQM)**, Certification # 8916. ASQ, Buffalo, New York, 2004
- **Certified Quality Auditor (CQA)**, Certification # 31514. American Society for Quality (ASQ), Buffalo, New York, 2003
- **Strategic Quality Management & The Reliable Organization**. Graduate, The Quality College - Philip Crosby Associates, Winter Park, Florida, 2002
- **FDA - Better Process Control School Certification**. Department of Food Science & Technology, University of California at Davis, Davis, California, 1980

PATENTS

1. PROCESS OF EXTRACTING ISOTHIOCYANATES

US Patent Number 8,697,150 B2. Patent Granted: April 15, 2014.

Abstract: A process for producing an essential oil. The essential oil can be white mustard essential oil. The white mustard essential oil can include a moisture sensitive isothiocyanate compound 4-HBITC. The essential oil can be produced from mustard seed, which can comprise a precursor sinalbin and myrosinase enzyme. The mustard seed can be reduced into a powder.

Assignee: The Procter Gamble Company, Cincinnati, Ohio, USA.

Inventors: ATHULA EKANAYAKE, SCOTT ALAN VANDIEST, JEFFREY JOHN KESTER, PAUL HENRY ZOUTENDAM and JAIRUS R. D. DAVID

2. MUSTARD COMPOSITIONS

US Patent Application Publication No: US 2011/0244078 A1. Publication Date: Oct. 6, 2011.

Abstract: A white mustard essential oil having from about 30% to about 35% 4-hydroxybenzyl isothiocyanate by weight. An enriched white mustard essential oil having about 30% to about 80% 4-hydroxybenzyl isothiocyanate, by weight. A food or beverage product can include the enriched white mustard essential oil. A flour including a mustard flour, wherein the mustard flour is substantially free of sinablin.

Inventors: ATHULA EKANAYAKE, SCOTT ALAN VANDIEST, JEFFREY JOHN KESTER, PAUL HENRY ZOUTENDAM and JAIRUS R. D. DAVID

3. SOLID FOOD PRODUCTS AND METHODS OF THEIR PRESERVATION

World Intellectual Property Organization. International Application Publication No: WO 2013/163073 A1. International Publication Date: October 31, 2013.

Abstract: Disclosed herein are solid food products comprising an isothiocyanate compound. Also disclosed are methods of preserving solid food products comprising isothiocyanate compounds. In one embodiment, the methods comprise providing a solid food product comprising an isothiocyanate compound and exposing the solid food product to energy input to cause thermal heat. In one embodiment the energy input may be microwave radiation.

Inventors: ATHULA EKANAYAKE, JAIRUS R. D. DAVID, CLINTON L. JOHNSON and KARI D. SWEENEY

4. ALL-NATURAL HOT DOG

US Patent Application Publication No. US 2019/0261662 A1. Pub. Date: August 29, 2019.

Abstract: An all-natural hot dog including cultured celery juice powder, cherry powder, dried distilled vinegar, and natural smoke flavor and containing no nitrates or nitrites except for those naturally occurring in sea salt and cultured celery juice powder, where the hot dog has substantially equivalent or superior properties to a hot dog containing chemical additives.

Inventors: CORTNEY M. BALLARD and JAIRUS R. D. DAVID

Patent Filed by Ryan Grace, Owner and Partner at ADVENT, LLP, Omaha, Nebraska, USA.

5. SPROUTED POPCORN AND METHOD FOR MAKING SPROUTED POPCORN **US Patent Application Publication Number: US 2020/0196643 A1. Publication Date: June 25, 2020.**

Abstract: Aspects of the disclosure include a sprouted popcorn product having desirable texture and flavor. The product may be provided as un-popped ready to eat product. Methods of making the sprouted popcorn kernels and sprouted popped popcorn are disclosed.

Inventors: MELISSA GALIZIO, ANDREW WASSINGER, AGHOGHO PEDRO, and JAIRUS R. D. DAVID. Patent Filed by Ryan Grace, Owner and Partner at ADVENT, LLP, Omaha, Nebraska.

BOOKS

1. David, J.R.D., Coronel, P., and Simunovic, J. (2022). **Handbook of Aseptic Processing and Packaging. 3rd Edition.** Edited and published by CRC/ Taylor Francis Press, Boca Raton, Florida.
2. Davidson, P. M., Taylor, M., and David, J.R.D. (2021). **Antimicrobials in Food. 4th Edition.** Edited and published by CRC/ Taylor Francis Press, Boca Raton, Florida. October, 2020.
3. David, J.R.D., Graves, R.H., and Szemplenski, T.E. (2015). *Russian Translation. Handbook of Aseptic Processing and Packaging.* Edited and published by CRC/ Taylor Francis Press, Boca Raton, Florida.
4. David, J.R.D., Graves, R.H., and Szemplenski, T.E. (2013). **Handbook of Aseptic Processing and Packaging.** Edited and published by CRC/ Taylor Francis Press, Boca Raton, Florida.
5. David, J.R.D., Graves, R.H., and Carlson, V.R. (1996). **Aseptic Processing and Packaging of Foods: A Food Industry Perspective.** Edited and published by CRC/Taylor Francis Press, Boca Raton, Florida.

AWARDS & HONORS

- **IFT Fellow, 2008. Institute of Food Technologists (IFT), Chicago, IL.**

Election as an IFT Fellow is a unique distinction conferred to IFT Professional Members for outstanding and extraordinary contribution in the field of food science and technology. [See below citation for IFT Industrial Scientist Award].

- **IFT Industrial Scientist Award, 2006.** IFT, Chicago, IL.

This award honors an IFT industrial scientist member or team of industrial scientists that have made a significant contribution to the advancement of the food industry.

Recognized for developing and influencing public health food safety policy on use of honey in cereals and bakery products for prevention of infant botulism in infants less than one year old. Lead “No- Boundaries” team of researchers from the Food Research Institute (FRI), Centers for Disease Control & Prevention (CDC), and American Academy of Pediatricians (AAP), Nestle, and Heinz to develop honey food safety policy for ready-to-eat infant cereals and bakery products for the prevention of potential incidence of infant botulism in children age 12 months or younger. Currently all honey and honey containing food products in commerce carry a warning label **“Do not feed honey to infants under one year of age”** because of this collaborative work.

- [*Pediatric Basics*, 1996. Editorial. Volume 76, Page 1.]

LEVERAGEABLE NETWORK

Possess extensive network with centers of excellence and food agencies in bringing right information to communicate and guide food safety and intervention technology efforts within the company.

- Founding member & Board of Advisors, **Center for Food Safety & Quality Enhancement** – Dr. Mike Doyle, University of Georgia, Griffin, 1994 – 2002
- Board of Advisors, **Food Research Institute (FRI)** – Drs. Chuck Czuprynski & Kathy Glass, University of Wisconsin, Madison, 1997-2002 (Gerber Baby Foods); 2012-2019 (Conagra Brands)
- Industrial Board of Advisors, **Center for Advanced Processing & Packaging Studies (CAPPS)** – Dr. Kenneth Swartzel, North Carolina State University, Raleigh, 1999-2002

ADJUNCT FACULTY APPOINTMENTS & THESIS ADVISOR

- **Affiliate Faculty, Department of Food Science, Iowa State University, Ames, Iowa** 2020 - Present. Dr. Aubrey Mendonca & Dr. Byron Brehm-Stecher.
- **Adjunct Faculty, Department of Food Science, Nutrition and Health Promotion, Mississippi State University, Mississippi State, MS 39762.** 2020 -Present. Dr. Shecoya B. White & Dr. Will Evans (Department Head).
- **Adjunct Faculty, Department of Food Science & Technology, University of Nebraska at Lincoln, NE 68588.** Nebraska Innovation Campus (NIC), 2015 – Present. Dr. Andrew Benson & Dr. Curtis Weller (Department Head).
- **M.S. Degree.** Carlos D. Carter. 2014-2016. *Antimicrobial Activity of Essential Oil Encapsulated in Sodium Iota Carrageenan Fibers*. Food Science Department. Purdue University, West Lafayette, Indiana.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- Institute of Food Technologist (**IFT**)
- International Association for Food Protection (**IAFP**)
- Institute for Thermal Processing Specialists (**IFTPS**)

LEADERSHIP DEVELOPMENT & AWARENESS

- **New Product Development & Innovation.** Massachusetts Institute of Technology, Cambridge, Massachusetts. 2012
- **Managers Boot Camp.** Kellogg School of Management, North Western University, Evanston, Illinois. 2006
- **High Performance Team.** Center for Creative Leadership (CCL). Colorado Springs, Colorado. 2002
- **Seven Habits of Highly Effective People.** Covey Leadership Forum, Detroit, Michigan. 1998.

PEER-REVIEWED JOURNAL PUBLICATIONS

1. Kottapalli B, Quaranta D, Akins-Lewenthal D, Schaffner DW, David JRD. **2020. Evaluating the Behavior of *Staphylococcus aureus* and *Bacillus cereus* in Dairy- and Non-Dairy-Based Aqueous Slurries During Manufacturing of Table Spreads** [published online ahead of print, 2020 Jun 5. *J Food Prot.* <https://doi.org/10.4315/JFP-20-060>]. *Journal of Food Protection*, 83(10): 1801-1811.
2. David, J.R.D. **2020. Multifactorial Food Preservation for High Quality Foods.** 2020 Clean Label Conference Proceedings, Page 14-16. Global Food Forum, Inc. Barrington, IL. P. Haven & C. O'Donnell (Editors).
3. Golden, M.C., Wanless, B.J., David, J.R.D., Lineback, D.S., Talley, R.J., Kottapalli, B., and Glass, K.A. **2017. Effect of Equilibrated pH and Indigenous Spoilage Microorganisms on the Inhibition of Proteolytic *Clostridium botulinum* Toxin Production in Experimental Meals under Temperature Abuse.** *Journal of Food Protection*, 80 (8): 1252-1258.
4. Golden, M.C., Wanless, B.J., David, J.R.D., Kottapalli, B., Lineback, D.S., Talley, R.J., and Glass, K.A. **2017. Effect of Cultured Celery Juice, Temperature, and Product Composition on the Inhibition of Proteolytic *Clostridium botulinum* Toxin Production.** *Journal of Food Protection*, 80 (8): 1259-1265.
5. Bozkurt, H., David, J.R.D., Talley, R., Lineback, S., and Davidson, P.M. **2016. Thermal Inactivation Kinetics of *Sporolactobacillus nakayamae* Spores, a Spoilage Bacterium Isolated from a Model Mashed Potato-Scallion Mixture.** *Journal of Food Protection*, 79 (9): 1482-1489.
6. Strawn, L.K., Brown, E., David, J.R.D., Bakker, H.D., Vangay, P., Yiannas, F., and Weidmann, M. **2015. Big Data in Food Safety – The Current State and Future Direction.** *Food Technology*, Vol 69, No. 1, Pages 42-49.
7. Monu, E. A., David, J. R. D., and Davidson, P. M. **2014. Effect of White Mustard Essential Oil on the Growth of Foodborne Pathogens and Spoilage Microorganisms and the Effect of Food Components on its Efficacy.** *Journal of Food Protection*, 77 (12): 2062-2068.
8. Benson, A.K., David, J. R. D., Gilbreth, S. E., Smith, G., J. Nietfeldt, J., Legge, R., J. Kim, and Sinah, R. **2014. Microbiome Analysis of a Model Refrigerated Fresh Pork Sausage Defines Microbial Successions and an Approach for Source-Tracking Shelf-Life Predictors.** *Applied and Environmental Microbiology*, 80 (17): 5178-5194.
9. Techathuvanan, C., Reyes, F., David, J.R.D., and Davidson, P.M. **2014. Efficacy of Commercial Natural Antimicrobials Alone and in Combinations Against Pathogenic and Spoilage Microorganisms.** *Journal of Food Protection*, 77 (2): 269–275.
10. David, J.R.D., Steenson, L.R., and Davidson, P.M. **2013. Expectations and Applications of Natural Antimicrobials to Foods: A Guidance Document for the Supplier, User, Research and Development and Regulatory Agencies.** *Journal of Food Protection Trends*, Science and News from the International Association of Food Protection (IAFP). Vol. 33, No. 4, Pages 241 – 250.

11. David, J.R.D., Ekanayake, A.E., Singh, I., Farina, B., and Meyer, M. **2013. Effect of White Mustard Essential Oil on Inoculated Salmonellae in a Sauce with Particulates.** *Journal of Food Protection*, Vol. 76, No. 4, Pages 580 – 587.
12. David, J.R.D. **1999. Bacillus cereus in Un-Refrigerated Reconstituted Infant Cereal.** *Pediatric Basics*, Editorial. Volume 96, Pages 1-2.
13. David, J.R.D. **1996. Honey: An Avoidable Risk Factor for Infant Botulism.** *Pediatric Basics*, Editorial. Volume 76, Page 1.
14. N. Hether, David, J.R.D., and F. Muci. **1995. You Cannot Buy or Make Safer Foods Than Gerber.** *Pediatric Basics*, Volume 74, Pages 1, 17.
 - Below publications 15, 16, 17 and 18 - published by Microbiology and Food Safety Committee (MFSC) of the National Food Processors Association (NFPA), Washington, DC (1991-1993).
15. David, J.R.D., et al. **1993. HACCP Implementation: A Generic Model for Chilled Foods.** *Journal of Food Protection*, Vol. 56, No. 12, Pages 1077-1084.
16. David, J.R.D., et al. **1993. Implementation of HACCP in a Food Processing Plant.** *Journal of Food Protection*, Vol. 56, No. 6, Pages 548-554.
17. David, J.R.D., et al. **1992. HACCP and Total Quality Management-Winning Concepts for the 90's.** *Journal of Food Protection*, Vol. 55, No. 6, Pages 459-462.
18. David, J.R.D., et al. **1991. Good Laboratory Practices: Food Microbiology Laboratories.** *Dairy, Food and Environmental Sanitation*, Vol. 11, No. 12, Pages 716-720.
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24. David, J.R.D., and Shoemaker, C.F. **1985. A Transducer for the Direct Measurement of Rates of Lethality During Thermal Processing of Foods.** *Journal of Food Science*, Vol. 50 (1): Pages 223-225.

BOOK CHAPTERS

1. David, J. R. D., Coronel, P., and Simunovic, J. **2022. Aseptic Processing and Packaging: Fundamentals & Frontiers.** In: *“Handbook of Aseptic Processing and Packaging”*, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Chapter 1*, Pages 1 – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
2. David, J. R. D., and Coronel, P. **2022. Thermal Process and Optimization of Aseptic Processes Containing Solid Particulates.** In: *“Handbook of Aseptic Processing and Packaging”*, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Chapter 7*, Pages xx – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
3. Benyathiar, P., Dharmendra, M., Szemplenski, T. E., and David, J. R. D. **2022. Aseptic Filling and Packaging Equipment for Retail Products and Food Service.** In: *“Handbook of Aseptic Processing and Packaging”*, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Chapter 8*, Pages XX – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
4. Senna, A.D., Abd, S. J., Ocasio, W., and David, J. R. D. **2022. Microbiology of Aseptically Processed and Packaged Products.** In: *“Handbook of Aseptic Processing and Packaging”*, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Chapter 13*, Pages XX – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
5. Dharmendra, M., Ozadali, F., Benyathiar, P., and David, J. R. D. **2022. Establishing “Validated State” of Aseptic Processing and Packaging Systems.** In: *“Handbook of Aseptic Processing and Packaging”*, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Chapter 15*, Pages xx – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
6. Dixon, T., Ozadali, F., and David, J. R. D. **2022. Quality and Food Safety Management System (QFSMS) for Aseptic and ESL Manufacturing Companies.** In: *“Handbook of Aseptic Processing and Packaging”*, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Chapter 16*, Pages xx – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
7. David, J. R. D., Coronel, P., and Simunovic, J. **2022. Frontiers and Research & Development Challenges and Opportunities.** In: *“Handbook of Aseptic Processing and Packaging”*, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Chapter 18*, Pages xx – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
8. David, J. R. D., **2022. Appendix A-2. Dr. William McKinley Martin – Father of Aseptic Canning.** In: *“Handbook of Aseptic Processing and Packaging”*, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Appendix A-2*, Pages xx – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
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“*Handbook of Aseptic Processing and Packaging*”, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Appendix 5-1, 5-2, 5-2, and 5-4*, Pages xx – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.

10. David, J. R. D., **2022**. Appendix A-8. **Thermal Processing Methods**. In: “*Handbook of Aseptic Processing and Packaging*”, 3rd Edition. David, J. R. D., Coronel, P., and Simunovic, J. (Editors). *Appendix A-8*, Pages xx – xx. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
11. Taylor, M.T., Davidson, P.M and David, J.R.D. **2021**. **Food Antimicrobials – An Introduction**. In: “*Antimicrobials in Food*”, 4th Edition. Davidson, P.M., Taylor, M.T., and David, J.R.D., (Editors). *Chapter 1*, Pages 1 - 12. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
12. Monu, E., and David, J.R.D. **2021**. **Use of Antimicrobials as Processing Aids in Food Processing**. In: “*Antimicrobials in Food*”, 4th Edition. Davidson, P.M., Taylor, M.T., and David, J.R.D. (Editors). *Chapter 19*, Pages 647 - 664. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
13. Legan, J.D., and David, J.R.D. **2021**. **Hurdle Technology – or Is It? Multifactorial Food Preservation for the 21st Century**. In: *Antimicrobials in Foods*”, 4th Edition. Davidson, P.M., Taylor, M.T., and David, J.R.D. (Editors). *Chapter 21*, Pages 695 – 714. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA.
14. David, J.R.D., and Taormina, P. **2021**. **Application of Antimicrobials to Foods - A Food Industry Perspective**. In: *Antimicrobials in Foods*”, 4th Edition. Davidson, P.M., Taylor, M.T., and David, J.R.D. (Editors). *Chapter 22*, Pages 715 – 784. CRC Press, Taylor and Francis Group, Boca Raton, Florida, USA.
15. Ekanayake, A., Strife, R.J., Zehentbauer, G.N. and David, J.R.D. **2016**. **Yellow or White Mustard (*Sinapsis alba* L.) Essential Oil**. In: “*Essential Oils in Food Production, Preservation, Flavour and Safety*”, Volume 2, *Chapter 98*, Pages 857-863. Elsevier Publishers, London, England.
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17. David, J.R.D., and Carlson, V.R. **2013**. **Validation and Establishment of Aseptic Processing and Packaging Operations**. In: *Handbook of Aseptic Processing and Packaging*. David, J. R. D., Graves, R. H., and Szemplenski, T. E. Second Edition, 2013. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA. *Chapter 9*, Pages 139-159.
18. David, J.R.D. **2013**. **Principles of Thermal Processing and Optimization**. In: *Handbook of Aseptic Processing and Packaging*. David, J. R. D., Graves, R. H., and Szemplenski, T. E. Second Edition, 2013. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA. *Chapter 11*, Pages 167-186.
19. David, J.R.D. **2013**. **Quality Assurance and Food Protection for Aseptically Processed and**

- Packaged Food.** In: *Handbook of Aseptic Processing and Packaging*. David, J. R. D., Graves, R. H., and Szemplenski, T. E. Second Edition, 2013. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA. *Chapter 12*, Pages 187-201.
20. David, J. R. D. **2013. Failure Mode and Effect Analysis, and Spoilage Troubleshooting.** In: *Handbook of Aseptic Processing and Packaging*. David, J. R. D., Graves, R. H., and Szemplenski, T. E. Second Edition, 2013. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA. *Chapter 13*, Pages 203-216.
21. David, J.R.D. **2013. Food Industry R&D and Management Needs and Challenges.** In: *Handbook of Aseptic Processing and Packaging*. David, J. R. D., Graves, R. H., and Szemplenski, T. E. Second Edition, 2013. CRC Press, Taylor and Francis Group. Boca Raton, Florida, USA. *Chapter 15*, Pages 263-288.
22. David, J.R.D. **1993. Aseptic Processing of Food: Market Advantages and Microbiological Risks.** In: *Advances in Aseptic Processing Technologies*, R.K. Singh and P.E. Nelson (Editors). Elsevier Applied Science, London and New York, *Chapter 8*, Pages 189-216.

INVITED PRESENTATIONS

1. David, J.R.D. **2021. Organic Acids as Food Preservatives.** Nutek Technical Review Meeting, February 24, 2021. Omaha, Nebraska.
2. David, J.R.D. **2020. “Hurdle Technology: Multifactorial Food Preservation for High Quality Foods.”** 2016 Clean Label Conference (VIRTUAL). Global Food Forums. Itasca, Illinois. March 24-25, 2020.
3. David, J. R. D. **2020. Naturally Occurring Antimicrobials.** Nutek Technical Review Meeting, May 14, 2020. Omaha, Nebraska.
4. David, J. R. D. **2019. Opportunities for Use of Antimicrobials in Processed Dairy Products.** Nutek Technical Review Meeting, December 12, 2019. Omaha, Nebraska.
5. David, J.R.D. **2019. Preparation and Cooking of Frozen Foods in Microwave by Consumers - Some Considerations.** The Brave New World of Microwave and Radio Frequency, November 6-9, 2019. Fall Seminar, Presented by the International Microwave Power Institute, TurboChef Head Quarters, Carrollton, Texas.
6. David, J. R. D. **2019. Natural Antimicrobials – Challenges and Opportunities.** Nutek Technical Meeting, June 21, 2019. Omaha, Nebraska.
7. David, J.R.D. **2017. Key note: “What is a Clean Label? A Food Industry Perspective.”** Food Research Institute (FRI) at University of Wisconsin, Madison. May 17-18, 2017, Spring Annual Meeting.

8. David, J.R.D. **2016**. “**Natural Antimicrobials: Strategies and Considerations for Their Food Use.**” 2016 Clean Label Conference. Global Food Forums. Itasca, Ill. March 29-30, 2016.
9. David, J.R.D. **2016**. Keynote Presentation at Annual Research Symposium. “**Natural Antimicrobials: Strategies and Considerations for Their Food Use.**” Robert Kerr Food & Agricultural Products Center, Oklahoma State University, Stillwater, OK 74078. February 16, 2016.
10. David, J.R.D. **2015**. “**Application of Natural Antimicrobials in Food: Food Industry User Perspective.**” IFT 2015 – Session 008 Future of Food Preservatives: Emerging Natural and Potential Alternatives. McCormick Place, Chicago, IL. July 12, 2015.
11. David, J.R.D. **2015**. “**How Industry Uses Big Data; Metagenomics and Beyond.**” **Whole Genome Sequencing of Foodborne Microbiological Pathogens.** 119th AFDO Annual Education Conference. Session on Whole Genome Sequencing. Co-chaired by Pete Salsbury and Dr. Eric Brown, CFSAN, FDA. Indianapolis, June 22, 2015.
12. David, J.R.D. **2014**. “**How Industry Uses Big Data; Metagenomics and Beyond.**” IAFP Annual Meeting, Session S8: Big Data - Food Safety’s Holy Grail or Pandora’s Box? Indianapolis, August 4, 2014.
13. David, J.R.D. **2004**. **Principles of Food Preservation and Food Safety: A Food Industry Perspective.** Invited Key Note Speaker at the Fall Symposium on Food Safety, American Society of Microbiology, Western New York State Branch. Fairdale Banquet Hall, Wehrle Drive, Amherst, New York, November 10, 2004.
14. David, J.R.D. **2000**. **Application of Cleanroom Technology for Assurance of Food Safety of Minimally Processed Foods.** Paper No.7. Symposium No. 82 on “Aseptic Packaging to Extend Refrigerated Shelf Life.” Co-organizer and Co-chair & Presenter at this Symposium. 60th Institute of Food Technologists – Annual Meeting, Dallas, Texas, June 14, 2000.
11. David, J.R.D. **1995**. Research Needs to Ensure Safety of Low Acid Aseptically Packaged Products. Paper No. 5. Symposium No. 4 on “**Current Status of Aseptic Processing and Packaging: An Industry Perspective.**” Co-organizer and Co-chair & Presenter at this Symposium. 55th Institute of Food Technologists – Annual Meeting, Anaheim, California, June 1, 1995.
12. David, J.R.D. **1994**. “**Aseptic Processing and Packaging of Foods – A U.S. Perspective.**” Invited Symposium Speaker at Canners International Permanent Committee (CIPC) of France. National Food Processors Association’s 87th Annual Convention, Los Angeles, California, November 2-5, 1994.
13. David, J.R.D. **1991**. “**Aseptic Processing of Foods: Market Advantages and Microbiological Risks.**” CoFE 1991. AIChE sponsored Conference on Food Engineering (CoFE). Symposium on *Advances in Aseptic Processing Technologies*, R.K. Singh and P.E. Nelson (Co-conveners), Chicago, IL. March 10, 1991.
14. David, J.R.D. **1989**. “**Quality Assurance for UHT-Sterilized and Aseptically-Packaged Food.**” Food Engineering and Technology Series. Paper No. 17. Sponsored by Wisconsin Dept. of Agriculture, Univ. of Wisconsin, Madison, January 9-10, 1989.

15. David, J.R.D. **1988**. “**Realization of a Commercial Low Acid Thermoform-Fill-Seal Machine: Part B: QA Aspects.**” Fifth International Conference on Aseptic Packaging ASEPTIPAK '88. Paper No. 4-Bloomington, IL June 8-10, 1988.
16. David, J.R.D., and Merson, R.L. **1985**. “**Reactor for Measuring Kinetic Parameters for Thermal Processing at High Temperatures: Heat Transfer Studies.**” 45th Annual Meeting the Institute of the Food Technologists (IFT), Paper No. 214: Atlanta, Georgia. June 9-12, 1985.
17. David, J.R.D. **1985**. “**Developments in Ultra High Temperature (UHT) Processing: A Research Review.**” Northern California Institute of Food Technologists Meeting. Memorial Union, University of California at Davis, Davis, California 95616. January 29, 1985.
18. David, J.R.D. **1982**. **CO₂ LASER Sterilization: A New Method for Evaluation of Thermal Resistance of *Clostridium sporogenes* (PA 3679) at Ultra High Temperature (UHT) in Fractions of a Second using CO₂ LASER.** Laser Lab at UC Berkeley and Department of Food Science & Technology at UC Davis, CA., August 8, 1982.

POSTER PRESENTATIONS

1. Davide, Q., David, J.R.D., Ziebell, B., and Akins-Lewenthal, D. **2020**. **Metagenomic Analysis of Refrigerated Foods Treated with High Pressure Process and Natural Antimicrobials.** IAFP (International Association of Food Protection) Poster Session, Annual Meeting, Cleveland, Ohio.
2. Techathuvanan, C., Monu, E., David, J.R.D, Davidson, P.M. **2013**. **Effect of Commercial Natural Antimicrobials Based on White Mustard and Citrus on Foodborne Pathogens and Spoilage Microorganisms.** IAFP (International Association of Food Protection) Poster Session, Annual Meeting, Charlotte, North Carolina.
3. Robart, M., David, J.R.D., Alles, S., Weaver, T., and Chang, S.Y. **1994**. “**Optimization of Commercial Sterility Testing.**” IAMFES Annual Meeting, Poster Session. San Antonio, Texas, August 1, 1994.
4. David, J.R.D., and Merson, R.L. **1985**. “**Reactor for Measuring Kinetic Parameters for Thermal Processing at High Temperatures: Thermal Death Time Studies.**”. Fourth International Congress on Engineering and Food (ICEF-4), Poster No. 12. Edmonton, Alberta, Canada. July 7-10, 1985.
5. David, J.R.D., and Merson, R.L. **1983**. “**Kinetics of Inactivation of Bacterial Spores at High Temperatures in a Reactor.**” Ninth International Spores Conference, Poster No. 42. Asilomar Conference Center, Pacific Grove, California 93950. September 3-6, 1983.

PUBLIC HEALTH FOOD SAFETY POLICY & COMMUNICATION

(Gerber Baby Foods, Fremont, Michigan, 1990-2002)

1. Honey Food Safety and Infant Botulism, 1994

Influenced and implemented a national policy on honey food safety for baby foods. Led “No-Boundaries” team consisting of researchers from the Food Research Institute (FRI), Centers for Disease Control & Prevention (CDC), and American Academy of Pediatricians (AAP), Nestle, and Heinz to develop honey food safety policy for ready-to-eat infant cereals and bakery products for the prevention of potential incidence of infant botulism in children age 12 months or younger. Currently all honey and honey containing food products in commerce carry a warning label “**Do not feed honey to infants under one year of age**” because of this collaborative work.

[*Pediatric Basics*, 1996. Volume 76, Page 1.]

2. Consumer Perception and Labeling of Pasteurized Juices, 1995

Implemented a companywide safety policy for Gerber Baby Foods on correct “Labeling of pasteurized juices” for all hot-fill-hold juices for babies, to dispel consumer perception and fears due to presence of a deadly pathogen - *E. coli* 0157:H7 incriminated in recall of fresh (raw) unpasteurized and under-pasteurized juice sold by Odwalla.

3. Mycotoxin Defect Action Level (DAL), 1998

Led a cross-functional team to develop food safety objective and performance standards for mycotoxin in incoming ingredients-fruit puree and in finished products. Set an internal standard for Defect Action Level (DAL) for Patulin at 25 ppb for baby food - apple and pear juices vs. FDA standard of 50 ppb for adults.

4. *Bacillus cereus* and Cereal Storage and Handling Safety, 1999

Communicated *Bacillus cereus* food safety in un-refrigerated and reconstituted infant cereal to 60,000 pediatricians via an editorial in Gerber Pediatric Basics Journal. Recommended pediatric health care professionals to advise parents and care providers to discard unused reconstituted cereal especially with milk to minimize risk of growth of *B. cereus* and potential for production of emetic and diarrheal toxins.

[*Pediatric Basics*, 1999. Editorial. Volume 96, Pages 1-2.]

5. Prevention Policy for Ingredient Food Safety & Mad Cow Disease, 2000

Implemented policy for control and prevention of contamination from Mad Cow Disease (BSE) in beef, beef gelatin, milk and milk products through vendor certification and Supply Chain audits and verification.

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