Curriculum Vitae

of

Mingruo Guo *B. S., M. S., Ph. D.*
Professor
Department of Nutrition and Food Sciences

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1982 B.S. Animal Science, Northeast Agricultural University (NEAU), Harbin, China
1985 M.S. Dairy Technology, Thesis: Studies on Physico-chemical Composition and Characteristics of Goats Milk, NEAU, Harbin, China
1990 Ph.D. Food Chemistry, Thesis: Heat-induced Modifications of Milk Proteins, National University of Ireland at Cork (UCC), Ireland

[illegible]

2008-Present	*Full Professor*	Department of Nutrition and Food Sciences, University of Vermont (UVM), Burlington VT 05405
1999-2007	*Associate Professor*	The University of Vermont
1997-1998	*Res. Assistant Professor*	Department of Nutrition and Food Sciences, UVM
1993-1996	*Research Associate*	Department of Animal and Food Sciences, UVM
1992-1993	*Professor & Vice Chair*	Department of Food Science, NEAU, Harbin, China
1991-1992	*Associate Professor*	Department of Food Science, NEAU, Harbin, China
1990-1991	*Assistant Professor*	Department of Food Science, NEAU, Harbin, China
1989-1990	*Postdoctoral Associate*	Department of Food Chemistry, UCC, Ireland
1987-1989	*Teaching Assistant*	Department of Food Chemistry, UCC, Ireland
1985-1987	*Lecturer*	Department of Food Science, NEAU, Harbin, China

[illegible]

1. [illegible] :

- Two milk-based infant formulas (1990-1992)
- Two milk-based nutritional supplement products (1993)
- Cream liquor product (1993)
- Non-fat Cream Cheese (1996)
- Two natural fruit beverages (1997)
- Probiotic yogurt cheese (1998) licensed to VT Quality Dairies, LLC
- Probiotic drinking yogurt (1998) licensed to Lyberte yogurt Canada
- Symbiotic yogurt beverage (2001) transferred to an US company
- Probiotic Fromage Blanc cheese (2002) transferred to VT Cheese Co.
-Oats-based symbiotic beverage (2003)
-Environmentally safe wood finish containing whey proteins licensed to two companies (2003 & 2004)
-Symbiotic oats yogurt (2004)
-Symbiotic goat's milk beverage (2005) transferred to an US company
-Symbiotic yogurt drinks (06) and transferred to a company in VT
-Symbiotic non-lactose yogurt (07) transferred to GCL LLC (Boston)
-Symbiotic goat's milk yogurt (08) Oakknoll Dairy (VT)
-Low fat functional goat's milk yogurt (2012) Oakknoll Dairy (VT)
-Maple tap water beverage (2013) Big Barn Grazers (VT)
-Infant formula for premature and low birth weight babies (2014), Wandashan Dairy
-Whey protein encapsulated Diindomethane for Food Science Coop (2017)
-Whey protein encapsulated CBD for Cannabis Science and Education Institute (2019)

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Whey protein based natural nano materials
Functional foods design and development
Whey protein based micro-encapsulation of probiotics
Whey utilization and environmentally safe products
Pre- and probiotics
Milk-, soy, and oats-based functional foods

GMR, et al. 2009.

(eds), Handbook of milk of non-bovine mammals. pp345-353. Blackwell Publishing, Ames, Iowa.

Park, Y. and MRG. 2006. Goat's milk products. In: Y. Park and G. Haenlein (eds), Handbook of milk of non-bovine mammals. pp59-106. Ames, Iown:a. M. 5.5Amo. 22 (3.4 (t)-23 (n:)

Gao, Y. and **MRG** 2008. L -lactic acid production by batch fermentation of whey permeate using *L. casei and L. lactis*. China Dairy Industry 36(3): 4-9.
Gao, Y., F. Guo, S. Gokavi, A. Chow, Q.H. Sheng, **MRG** 2008. Quantification of water -

Cress (*Lepidium sativum*) seeds. Plant Foods for Human Nutrition 59: 105-

Gotcheva, V., Hristozova, E., Hristozova, T., Angelov, A, Roshkova, Z., and MR. G . 2003. Assessment of potential probiotic properties of lactic acid bacteria and yeast strains. Food Biotechnology, 16:211-225.

Farnsworth J. P., Li, Jiancai, and MRG 2003. Improved structure and consistency of probiotic goat's milk yogurt. The Aust. J. Dairy Technol. 58: 187.

Chi, Yujie, Tian, Bo, MRG 2003 Enzymatic Hydrolysis Condition for Egg White Proteins. J. Harbin Institute of Technology 10(2):225-228.

GMR . and J. Li. 2003. American Cheese Industry-Status and Trends. China Dairy Industry J. 32 (3): 42-44.

Hendricks, G.M., MR G and Kindstedt, P.S. 2001. Solubility and Relative Absorption of Copper, Iron, and zinc in two Milk-based Liquid Infant Formulae. International J. Food Sci. Nutri. 52:419-428.

GMR, Dixon, P.H., Park, Y.W., Gilmore, J. A., and Kindstedt, P.S. 2001. Seasonal Changes in the Chemical Composition of Commingled Goat's Milk. J. Dairy Sci. 84(E. Suppl.):79-83.

Metzger, L.E., Barbano, D.M., Kindstedt, P.S. and MR G 2001. Effect of Milk Pre-acidification on Low Fat Mozzarella Cheese: II. Chemical and Functional Properties during Storage. J. Dairy Sci. 84:1348-56.

Metzger, L.E., Barbano, D.M., Rudan, M.A., Kindstedt, P.S. and MG . 2000. Whiteness Change during Heating and Cooling of Mozzarella Cheese. J. Dairy Sci. 83:1-10.

GMR, Flynn, A. and Fox, P.F. 1999. Heat-induced Changes in Nutritional Properties of Sodium Caseinate. Intern. Dairy J. 9: 243-247.

GMR, Hendricks, G.M. and Kindstedt, P.S. 1999. Effect of processing on Protein-protein and Protein-lipid interactions and Mineral Distribution in Infant Formula. Intern. Dairy J. 9: 393-397.

GMR, Wang, S.P., Li, Z. and Kindstedt, P.S. 1998. Ethanol Stability of Goat's Milk. Intern. Dairy J. 8:57-60.

GMR, Hendricks, G.M. and Kindstedt, P.S. 1998. Component Distribution and Interactions in Powdered Infant Formula. Intern. Dairy J. 8:333-339.

Kindstedt, P.S. and MRG 1998. A Physico-Chemical Approach to the Structure and Function of Mozzarella Cheese. Aust. J. Dairy Technol. 53:70-73.

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Changes in Some Major Mineral Contents during Lactation. China Dairy Industry. 19:195-200, 214.

GMR and Luo, X.C. 1991. Human Milk Chemistry and Infant Formula Technology. China Dairy Industry. (Suppl.) 20:1-5.

GMR and Luo, C.X. 1990. The Flavor of Goat's Milk. China Dairy Industry. 18:91-94.

GMR and Xiao, L. 1989. Measurement of Lactose by Using A Colorimetric Method. China Dairy Industry. 17:99-102.

GMR, Fox, P.F. and Flynn, A. 1989. Heat-induced Changes in Sodium Caseinate. J. Dairy Res. 56:505-512.

GMR and Luo, C.X. 1987. Characteristics of Lipids in Goat's Milk. China Dairy Industry. 15:122-125.

Cheng, P., Lu, A., Song, C. and MRG. 1986. Determination of Multi

International Society for Dairy Goat Healthy Farming & Milk Processing Conference. China Shaanxi, Fuping, October 19–20, 2014, Fuping, China.

GMR 2013. Oats-based functional Foods. BIT's 6th Annual World Congress of Industrial Biotechnology, Nanjing, China, April 25–27, 2013.

GMR and S. Ahmad 2012. Bioactive components in buffalo milk and products. Symposium on bioactive components in milk. American Dairy Science Association Annual Meeting, Phoenix, AZ, July 16–19, 2012.

GMR (S) 2011. Chemical composition and sensory properties of symbiotic oat frozen yogurt. The 5th China Medical Biotech Forum (CMBF-2011), Beijing, November 7–9, 2011.

GMR and Yu, G. P., 2010. Enzymes and dairy foods. BIT's Inaugurate Symposium on Enzymes & Biocatalysis 2010, Shanghai, China, April 22–24, 2010.

GMR 2010. Functional and microbiological properties of fermented goat's milk Beverages. The 1st China International Lactic Acid Bacteria Conference, Huhhot, P.R. China, August 6–8, 2010.

Gokavi, S., Walsh, H., Lee, F., Almena-Aliste, M., **MRG** 2009. Probiotic survivability, sensory Ppoperty and stability of symbiotic drinkable yogurt. Functional Foods for Chronic Diseases: Diabeties and Related Diseases. The 6th International Conference Proceedings. Denton, Taxes, December 4–6, 2009.

Xia Chen, Heping Zhang and **MG**, 2009. Microencapsulation of Lactobacilli using Polymerised Whey Proteins. 6th NIZO Conference: Innovations and Functionality, Papendal, The Netherlands, September 30 – October 2, 2009.

Scott Christiansen, **MG** and Derek Kjelden. 2009. Chemical composition and nutrient profile of low molecular weight fraction of bovine colostrum. 6th NIZO Conference: Innovations and Functionality, Papendal, The Netherlands, September 30 – October 2, 2009.

GMR 2009. Probiotic survivability and stability of symbiotic yogurt beverage. Functional Dairy Foods Conference of International Dairy Federation. February 24–25, 2009. Melburne, Australia.

Lee, F. L., A. Howard, **MRG** 2007. Physiochemical and functional properties of Environmentally friendly wood finish products containing polymerized whey proteins. Proceedings of the 2nd International Conference on Advanced Petrochemicals and Polymers (ICAPP), pp 97–101, Bangkok, Thailand, June 25–28, 2007.

GMR 2007. Chemical composition and cheese yield of goat milk cheese. Small Ruminant

Functional Foods. Beijing, June 3-4, 2002.

GMR, Aspects of soy-based infant formula formulation and processing. International Symposium on Soy-based formulas, Qingdao, China, July 1-3, 2002.

GMR, Overview of American Dairy Industry. China National Symposium on Dairy Technology, Harbin, China, August 20-21, 2001.

Gotcheva V. and **GMR**. Effects of prebiotics on probiotic cultures during the fermentation Of goat milk yogurt. International Symposium on Functional Foods-Scientific and Global Perspectives, Paris, France, October 17-19, 2001

GMR, Dixon, P.H., Park, Y.W., Gilmore, J.A., and Kindstedt, P.S. 2000. Seasonal Changes in the Chemical Composition of Commingled Goat's Milk. Small Ruminant Dairy Research Symposium, ADSA/ASAS Annual Meeting. Baltimore, MD July 24-28.

GMR, Kindstedt, P.S., Metzger, L.E., and Barbano, D.M. Low Fat Mozzarella Cheese from Preacidified Milk. Cheese Science'98: An International Confernece on Cheese Science and Technology. The University of Melburne, Victoria, Australia, July 1-3, 1998.

GMR, Flynn, A., and Fox, P.F. Heat-induced Changes in the Nutritional Properties of Sodium Caseinate. Hannah Symposium: Caseins, Caseinates-Structure, Interactions,

Ma, S., Wang, C. N., and **GMR** 2018. Changes in structure and antioxidant activity of -lactoglobulin by ultrasound and enzymatic treatment. ADSA Annual Meeting Abstract book.

Ma, S. and **GMR** 2017. Effect of ultrasound on antimicrobial properties of whey protein-totarol nanogel. Experimental biology Annual Meeting Abstract book.

Li, D. and **GMR** 2017. Physiochemical properties, microstructure and probiotic survivability of symbiotic rice-based yogurt-like product using polymerized whey protein as a gelation agent. Experimental biology Annual Meeting Abstract book

GM, D. Liu, and C. Wang. 2016. Effects of sodium polyphosphate distribution and of particle size of polymerized whey protein. J. Dairy Science, 99, E-Suppl. 1:242.

Shen, X. T. Fang, T. Zhang, and **MG** 2016. Effects of ultrasound treatment on physicochemical properties of soluble whey protein aggregates. J. Dairy Science, 99, E-Suppl. 1:242.

GM ., X. Wang, F. Lee, J. Lv, D. Zhang. 2016. Effect of gama radiation on physiochemical Properties, protein-protein interaction, and microstructure of whey proteins. J. Dairy Science, 99, E-Suppl. 1:241.

Wang, C.N., Wang, H., Guo, M.R. 2015. Interactions between whey protein and inulin in model system. Journal Dairy Science, 98 (Suppl. 2):353.

Liu, N., Wang, G.R., Wang, X.B., Lv, J.P., Guo, M.R. 2015. Effects of radiation on protein-protein interactions, microstructure, and microbiological properties of whey protein in model system. IFT 15 Annual Meeting Abstract Book.

Zhang, D, Wang, X,B., Guo, M.R. 2015. Chemical composition, probiotic survivability and shelf life studies of symbiotic buttermilk.

Liu, S., Man, C., Peng, X., Zhou, W., **GM** ., Jiang, Y. 2014. Protective effect of lactic acid bacteria against H_2O_2-induced oxidative stress in Caco-2 cells. J. Dairy Science, 97 (Suppl. 1):505.

Li, L., Man, C., Yu, S., Mu, D., **GM** ., Y. Jiang. 2014. Optimization of aminobutyric acid production of Lactobacillus plantarum and determination of flavor substances in γ-aminobutyric acid enriched fermented milk. J. Dairy Science, 97 (Suppl. 1):522.

Hou, J, Walsh, H., G. Wang, M.R. Guo. 2014. Chemical composition, antioxidant capacity and shelflife stability of blueberry and cranberry flavored maple sap water beverages. Experimental Biology-2014 Annual Meeting Abstract Book.

Walsh, H. and **MRG** 2014. Whey protein based natural nano composite for food packaging IFT Annual Meeting Abstract book.

Zhang T.H, J. McCarthy, 0 Td (2 (i)-2 (l)-21 (.R)s)-1 (h, H)2 2 (l)P 0 Tf7u>>BDC,(J)-15 (.)-4 (D). and probiotic cultures using polymerized whey proteins as wall material. J. Dairy Science. 94 (E-Suppl. 1):34.

Wang G and Guo M. 2011. Development of safe glue sticks containing whey protein. J. Dairy Science. 94 (E-Suppl. 1):297.

Bao, Y., X. Liang, L. Qin, R. Li, and **M. Guo**. 2010. Antioxidative peptides isolated from fermented whey proteins by lactobacilli and their effects on aged mice. J. Dairy Sci. 93 (E-Suppl. 1):337.

Walsh, H., J. Cheng, and **M. Guo**. 2010. Physicochemical properties of pomegranate flavored carbonated symbiotic beverage. J. Dairy Sci. 93 (E-Suppl. 1): 339.

McCarthy, J., Z. Zhang, and **M. Guo**. 2010. Development of symbiotic milk candy. J. Dairy Sci. 93 (E-Suppl. 1):339.

Wang, J., J. Cheng, and **M. Guo**. 2010. Physicochemical properties of whey protein-based safe paper glue. J. Dairy Sci. 93 (E-Suppl. 1):339.

Chen, X., Y. L. Gao, L. H. Zhou, and M. R. Guo. 2009. Development and functionalities of milk protein-based paper glue.

Alam, M., Li, J., and **MRG**. 2006. Production of potassium acetate from cheese whey using Immobilized cell fermentation. J. Dairy Sci. 89 (Suppl. 1.):180.

Gokavi, S., M. Alam, **MRG**. 2006. Quantification of fructooligosaccharides in infant formula. J. Dairy Sci. 89 (Suppl. 1.):179.

Chi, Yujie, Tian Bo, Sun, Bo, **MRG** 2005. Enzymatic hydrolysis conditions for egg white proteins. 6th International Conference on Food Science and Technology, Book of Abstracts. p128, Guangzhou, China, November 9-11, 2005

Pinkam, T. S.. Gokavi, B. Rice, **MRG** 2005. Development of symbiotic soy milk yogurt beverage. 6th International Conference on Food Science and Technology, Book of Abstracts p54, Guangzhou, China, November 9-11, 2005

Ross, J.K. and Guo, M.R. 2005. Sensory Evaluation of Organic Tofu Containing Recipes by College Students in an Introductory Foods Class. J Am Diet Assoc 105(8):Suppl S48.

Li, S., S. Gokavi, **MRG** 2005. Development of symbiotic goat's milk yogurt beverage. J. Dairy Sci. Vol. 88 (Suppl. 1):267.

Rice, B. H., **MRG**, and S. Gokavi. 2005. Development of oat-based symbiotic yogurt-like product using whey protein isolate as a gelation agent. IE2(l)-2 (a)4 (>>BDk2e)4 (s)(i)-2 (r)-

Farnsworth, J. G. Hendricks, V. Gotcheva, R. Akuzawa, and MRG. 2002. The effects of enzymatic crosslinking on the consistency and structure of probiotic goat's milk yogurt. J. Dairy Sci. (Suppl. 1.):120.

Li, J. and MRG. 2002. Develop an environmentally safe wood finish product using whey protein as a co-binding material. J. Dairy Sci. (Suppl. 1):380.

Smith, C.R., Cattie, M. and MR G. 2002. Effect of antioxidants on solubility of trace minerals in infant formula. J. Dairy Sci. 85 (Suppl. 1): 382.

Smith, C.R., MR G, and Tyzbir, R. S. 2002. Effect of heat treatment on carnitine in milk and model systems. J. Dairy Sci. 85 (Suppl. 1): 289.

Wright, N.C. and MR G. 2002. Characterization of an environmentally safe wood finish containing whey proteins. Book of Abstracts. 224th ACS National Meeting, Boston, MA. August 18-22, 2002.

Buldo, P., Gotcheva, V. and MR G. 2001. Survivability of Probiotic Cultures in Symbiotic Goat's Milk Yogurt. J. Dairy Sci. 84 (Suppl. 1): 304.

Gotcheva,V., Hristozova, E.T., Hristozova, A.. Roshkova, A. Z. and MR 2001. Characterization of potential probiotic and milk fermenting properties of lactic acid bacteria strains. J. Dairy Sci. 84 (Suppl.):305.

Depinovska, A. and MR . G . 2001. Macedonian Dairy Industry current situation and outlook. J. Dairy Sci. 84 (Suppl. 1):317.

Grace, T. A., Cai, D. L., and MR G. 2001. Determination of B_{12}, biotin, and folic acid in infant formula by Biomolecular Interactive Assay. J. Dairy Sci. 84 (Suppl. 1):317.

Smith, C.R., MRG, Hendricks, G.M., & Tyzbir, R.S. 2001. Comparison of Component Interactions and Mineral Distribution in Infant Formulas Prepared with Organic or

Metzger, L.E., Barbano, D.M., Rudan, M.A., Kindstedt, P.S. and M.R. [illegible]1998. Whiteness Change during Heating and Cooling of Mozzarella Cheese. J. Dairy Sci. 81 (Suppl. 1):7.

[illegible]., and Kindstedt, P.S. 1997. Chemical Composition and Serum Phase of [illegible] Cream Cheese. J. Dairy Sci. 80 (Suppl. 1):133.

[illegible]

Minneapolis, MN, July 9-13, 2006.
Chi, Yujie, Tian Bo, Sun, Bo, **MRG** 2005. Enzymatic hydrolysis conditions for egg white proteins. 6th International Conference on Food Science and Technology, Book of Abstracts p128, Guangzhou, China, November 9-11, 2005.
Pinkam, T. S.. Gokavi, B. Rice, **MRG** 2005. Development of symbiotic soy milk yogurt beverage. 6th International Conference on Food Science and Technology, Book of Abstracts p54, Guangzhou, China, November 9-11, 2005.
GMR 2005. Seasonal Variations in chemical composition and CLA in co. 2005. Dicer,nin ctien98 0 Tai

2018-2019. USDA-NIFA Hatch **MRGP**.

Maple sap based sports drink development $16,000.
2016-2017. Smith & Salmon, Inc. Burlington, VT. **MRGP**.

Organic maple sap beverage development and shelf-life studies $9,000.
2015-2016. Vermont Maple Sugar Producers, **MRGP**

Development and characterization of whey protein based tissue adhesive $64,500.
2014-2017. USDA-NIFA Hatch, **MRGP**

Development of flavored maple sap water beverages $9,600.
2012-2013. Prospect Avenue Partners, **MRGP**

Whey protein based natural nanopolymer materials for food packaging. **$** 63,000.
2011-2014. USDA Hatch. **MRGP**

Whey protein based adhesives for Skate Board manufacturing. $10,000.
2011. UVM Innovation Funds, **MRGP**

Develop whey protein based environmentally safe adhesives. $232,667.
2010-2012. USDA NIFA, **MRGP**

Microencapsulation of probiotic lactobacilli using polymerized whey protein. $41,000.
2009-2011. USDA Hatch, **MRGP**

Whey protein based environmentally safe wood adhesives. $186,000.
2009-2011. USDA CSREES, **MRGP**

Physicochemical properties and survivability of symbiotic oat based functional food Beverages. 2008-2010. USDA CSREES. **MRGP** $79,000.

Scale-up studies and market testing for soy-based coffee creamer. $50,700.
2008-2009. UVM Ag Innovation Funds. **MRGPI**

Development of goat's milk Kefir. 2008. Does' Leap Farm. **MRGP**. $4,000.

Development of oat-based functional foods. $30,000.
2006-2009. USDA-Hatch.. **MRGP**

Environmentally safe whey-based biodegradable plastics and adhesive products. $183,000.
2007-2008. USDA-CSREES **MRGP**.

Develop low fat symbiotic buffalo milk yogurt $22,000.
2007. Woodstock Water Buffalo Company, **MRG** PI

Goat milk infant formula development and its marketing. $100,000.
2007-2008. USDA-NRI, Seed Grant, Park, Y. PI, **M.R. Guo, Co-PI**

Development, research & marketing of environmentally safe whey-based floor finish. $100,000.
2006-2007. Vermont Department of Forest, Parks & Recreation. **M.R. Guo**, Co-PI

Conduct Branding Analysis for environmentally friendly wood finish. $50,000.
2006-2007. Vermont Department of Forest, Parks & Recreation. **M.R. Guo**, Co-PI

Evaluation and validation of Biacore Q instrument for analyses of B2 and $12,000.
pantothenic acid in infant formulas. 2006. **M.R. Guo**, PI Biacore Inc. NJ.

Effects of ultrasound treatments on microbiological & microstrutural properties of $50,000.
Shelf-life stable milk and milk-based beverages. 2006-2007. VDPC/NEDPB. **M.R. Guo**, PI.

Develop biodegradable plastic using cheese whey. $290,000. 2006-2008. USDA **M.R. Guo**, PI.

Evaluation of functional properties of whey protein products for infant formula $23, 000.
Formulation. 2006-2007. Wyeth Nutritionals, USA. J.J. Cheng PI, M.R. GUO, Co-PI.

Evaluation on functionalities of ingredients for infant formula manufacturing $22,000
2004-2005. Wyeth Nutritionals, USA. J. J. Cheng, PI and **M.R. Guo**, Co-PI

Development of environmentally safe products from cheese whey $259,000.
2005-2008. USDA **M.R. Guo, PI** And Fengqi Zhao, Co-PI.

Formulation of whey-based environmentally safe products for pests control. $129,500.
2005-2008. USDA **M.R. Guo, PI**

Development, evaluation and safety of entomopathogen for control of arthropod pests. $93,000.
2004-2007. USDA Hatch, M. Brownbridge, PI, **M.R. Guo**, M. Skinner, **Co-PI**

Marketing and development of organic soy products. 2005-2008. $200,000.
USDA. **M.R. Guo**, PI.

Develop environmentally safe snow/ice melting products from cheese whey. $240,000.
2003-2006. USDA. **M.R. Guo**, PI.

Functionality and survivability of probiotics in carbonated symbiotic milk beverage. $50,000.
2003-2004. VDPC/NEDPB. **M.R. Guo**, PI.

Develop a symbiotic Fromage Blanc. 2003. Vermont Butter and Cheese. **M.R. Guo**, PI. $4,500.

Development of an environmentally friendly ice-melting product using acid whey. $240,000.
2002-2005. USDA **M.R. Guo**, PI.

Ultrasonic treatment of milk and apple cider: A potential processing alternative. $30,000.
2002-2004. USDA Hatch, **MRG**, PI. T. Silk, Co-PI

Physiochemical characteristics of buffalo milk and its probiotic products development. $16,750.
2002-2003. Starhill Dairy, Inc. VT. **MRG**, PI

Development of a probiotic Fromage Blanc containing *L. Acidophilus*. $10,000.
2002. Vermont Butter and Cheese Company, Inc., **MRG**, PI.

Develop an environmentally friendly wood finish coating system using whey protein. $233,000.
as a primary binding material. 2001-2004. USDA, **MRG**, PI **.**

Develop a nutritional supplement product for pregnant women in developing countries. Fr20,000.
2002-2003. Nestle Nutrition Scholarship. S. Gokavi, PI, **MRG** (Host)

Functionality and component interactions of milk-based prebiotic nutritional beverage. $46,900.
2002. VDPC, **MRG**, PI

Developing an environment friendly whey protein-based wood finish coating. $159,035.
2000-2002. USDA. H. Chen, **MRG**

Validation of Biacore technology for quantifying folic acid, B12, and biotin in $29,780.
Wyeth nutritional products. 2001. Wyeth Nutritionals, Inc. **MRG**, PI.

Development of an environmental friendly ice-melting product (II). $2,000.
Helix/EPSCoR 2001. **MRG**, PI.

Improved solubility and absorption of trace elements in milk-based infant formula. $38,000.
2000-2002. USDA Hatch Grant. **MRG**, PI. B. Tyzbir Co-PI.

Solubility and distribution of trace elements in milk-based infant formula. 1999-00 $20,000.
Vermont AES Hatch Grant. **MRG**, PI; B. Tyzbir Co-PI.

Seasonal changes in nitrogen distribution and mineral profile of goat's milk. 1999 $4,300.
Vermont AES Hatch Grant. **MRG**, PI.

Development of Yogurt cheese prototypes. 1998. New England Dairy Promotion $40,000.
Council. **MRG**, Unofficial PI.

Development and manufacture of natural fruit beverages. 1997. $10,000.
Abenaki Natural Beverage, Inc., VT. **MRG**, PI.

Application of a new nonfat cream cheese base for the development of reduced fat $25,000.
and nonfat cream cheese. 1997. Vermont Dairy Promotion Council. **MRG**, Unofficial PI **.**

Research on natural whey-sweetened and calcium-fortified fruit juice $25,000.

beverages. 1997. Vermont Dairy Promotion Council. **Ro, MG**, Unofficial PI.

Changes in chemical composition of goat's milk. 1997. $7,000.
Vermont Butter and Cheese Co. Websterville, VT. **Ro, MG**, PI.