

**Name:** **Kasiviswanathan Muthukumarappan**  
**Title:** Distinguished Professor and Graduate Coordinator  
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## I. EDUCATION AND TRAINING:

Madras University, India	Mathematics	B.S., 1981
Tamil Nadu Agricultural University, India	Agricultural Engineering	B.E., 1986
Asian Institute of Technology, Thailand	Agricultural and Food Engineering	M.E., 1988
University of Wisconsin-Madison	Agricultural Engineering	Ph. D., 1993
University of Wisconsin-Madison	Food and Bioprocess Engineering	1993 - 1997

## II. TEACHING, RESEARCH AND PROFESSIONAL EXPERIENCE:

February, 2013 – Present, Distinguished Professor and Graduate Coordinator, Department of Agricultural and Biosystems Engineering, South Dakota State University; July, 2006 – January, 2013 Professor, Department of Agricultural and Biosystems Engineering, South Dakota State University - Developed, updated, and taught curriculum for undergraduate and graduate level courses using effective teaching techniques. Principal Investigator on several research projects, and advised undergraduate students, and graduate students in their academic and research activities. Wrote funded grant proposals, published numerous articles in refereed journals and presented papers at several invited national and international conferences.

March, 2007 – August, 2007, Visiting Professor, University College Dublin, Ireland - Worked on a FIRM funded research project titled “Efficacy of ozone and ultrasound for retention of quality and microbial reduction in fruit juice”. Advised two post graduate students and one post-doctoral research associate in carrying out both engineering and microbiology aspects of this collaborative food safety project.

July, 2001 – June, 2007, Associate Professor, Department of Agricultural and Biosystems Engineering, South Dakota State University - Developed, updated, and taught curriculum for undergraduate and graduate level courses using effective teaching techniques. Principal Investigator on several research projects, and advised undergraduate students, and graduate students in their academic and research activities. Wrote funded grant proposals, published articles in refereed journals and presented papers at several invited national and international conferences.

Aug, 1997 – June, 2001, Assistant Professor, Department of Agricultural and Biosystems Engineering, South Dakota State University - Principal Investigator on several research projects, advised undergraduate students, and graduate students in their academic and research activities. Wrote funded grant proposals, published articles in refereed journals and presented papers at several invited national and international conferences.

Aug, 1993 – July, 1997, Associate Researcher, Department of Biological Systems Engineering, University of Wisconsin-Madison - Co-PI on several research projects, advised students in academic and research activities, wrote funded grant proposals, published articles in refereed journals and presented papers at several invited national and international conferences.

July, 1989 – July, 1993, Graduate Research Assistant, Department of Biological Systems Engineering, University of Wisconsin-Madison

Jan, 1987 – June, 1989 Graduate Research Assistant, Division of Agricultural and Food Engineering, Asian Institute of Technology, Thailand

### III SIGNIFICANT CONTRIBUTIONS IN TEACHING AND ADVISING ACTIVITY (1997-2012 CONTRIBUTIONS):

#### III.A. TEACHING

AST 443, Food Process and Engineering Fundamentals  
ABE 754, Advanced Unit Operations in Food and Biomaterials Processing  
ABE 792, Renewable Energy Engineering  
MICR 450/550, Advanced Biotechnology  
BIOS 890, Ph.D. seminar  
NFSH 341, Food processing  
AE795, Current topics in food- and bioprocessing  
ABE 798, Thesis; ABE 898, Dissertation

#### III.B. DISSERTATIONS/THESES

1. Singha, P. 2016. Development of high protein low carb snack foods for Sanford Profile. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
2. Jahandideh, A. 2016. Development low cost densified feedstocks for jet fuel production and economic and life cycle analysis of the entire process. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
3. Kaur, J. 2015. Experimental and simulation studies on Single-Screw and Twin-Screw Extrusion Processing of Soybased feeds. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
4. Lohani, U. 2015. Characterization of SD based non-food oilseeds. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
5. Sundaram, V. 2014. Comparative study of biomass pretreatment and densification. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
6. Singh, S. 2014. Extrusion Processing of DDGS and Soybean based Feeds. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
7. Ramanathan, M. 2014. Development of 3<sup>rd</sup> generation biofuels from Cyanobacteria. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
8. Parisa, V. 2013. Extrusion Processing of DDGS based Feeds. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
9. Wood, C. 2013. Characterization of Co-products Produced from Various Feedstocks. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
10. Sivasastri, A. 2013. Pyrolysis of different feedstocks. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
11. Anahita, B. 2012. Pretreatment and Fermentation of different feedstocks using novel methods. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
12. Prawesh, C. 2012. Pretreatment of biomasses using high pressure ammonia treatment. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
13. Wang, Y. 2012. Integration of pretreatment and densification of Biomasses. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.

14. Shrestha, J. 2012. Single Screw Extrusion Processing of white Flakes and Soybean Meal. Unpublished M.S. Thesis, Asian Institute of Technology, Bangkok, Thailand.
15. Donepudi, A. 2011. Novel pretreatment of Biomasses. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
16. Karrupuchamy, V. 2011. Novel pretreatment of soymeals. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
17. Bhatra, R. 2010. Fractionation of value-added coproducts from biomass. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
18. Karunanithy, C. 2010. Pretreatment strategies for biofuel production. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
19. Ferouz, A. 2010. DDGS based aquaculture feed development using extrusion. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
20. Tiwari, B. 2010. Characterization of fruit juices treated with Ultrasound and Ozone. Unpublished Ph.D. Dissertation, University College Dublin, Dublin, Ireland.
21. Kannadhasan, S. 2009. Development novel pretreatment method using extrusion technology. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
22. Marella, C. 2008. Fractionation of whey protein using membrane separation technology. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
23. Chevanan, N. 2007. Understanding the role of DDGS in aquaculture feeds made from extrusion technology. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
24. Ganesan, V. 2007. Effect of flow agent, solubles, moisture content, temperature on flow properties of DDGS. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
25. Rai, M. 2007. Extruded Value-Added Dried Distillers Grains with Solubles (DDGS) and Wet Distillers Grains with Solubles (WDGS). Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
26. Singh, G. 2006. Understanding the role of biopetides in functional and rheological properties of yogurt. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
27. Park, H. 2006. Studies on functional and rheological properties of Hispanic cheeses. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
28. Chakraborty, P. 2006. Production of polyhydroxyalkanoates by *ralstonia eutropha* using condensed corn solubles. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
29. Biswas, A. 2005. Effect of calcium and phosphorous in functional and rheological characteristics of process cheese. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
30. Joshi, N. 2003. Effect of calcium in functional and rheological characteristics of Mozzarella cheese. Unpublished Ph.D. Dissertation, South Dakota State University, Brookings, SD.
31. Shukla, C. 2003. Development of pet foods using distiller's dried grain. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
32. Jhala, R. 2003. Synergistic effect of Microgard and Ozone in controlling *Listeria monocytogenes* in ready to eat cured ham. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
33. Sun, Y. 2001. Changes in Soy Isoflavones during Extrusion Processing. M.S. Thesis, South Dakota State University, Brookings, SD.
34. Zhai, L. 2001. Microstructural Characteristics of Cheddar Cheeses During Heating and Cooling. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.
35. Venugopal, V. 2000. Melting characteristics of different cheeses. Unpublished M.S. Thesis, South Dakota State University, Brookings, SD.

36. Tirtarahardja, L. 1998. Thermal and Dielectric Properties of Cheddar Cheese based on its Composition. Unpublished M.S. Thesis, University of Wisconsin, Madison, WI.
37. Wang, Y.C. 1998. Rheological Properties of Cheeses at Higher Temperatures. Unpublished Ph.D. Dissertation, University of Wisconsin, Madison, WI.

#### Invited External Examiner for Dissertations/Theses outside USA

1. Ms. Shalini Mishra Ph.D Examination, Indian Institute of Technology, Kharagpur, India (Aug 2011).
2. Mr. Ekkapong Cheevitsopon Ph.D Examination, Asian Institute of Technology, Bangkok, Thailand (June 2011).
3. Ms. Uma Tiwari Ph. D Examination, University College Dublin (UCD), Ireland (Nov 2010).
4. Mr. Seyed Mohammad M.S. thesis at University of Oman, Oman (Oct 2007).
5. Ms. Paula Bourke M.S. thesis at Dublin Institute of Technology, Dublin, Ireland (July 2007).
6. Mr. Seyed Emami Ph.D examination, Department of Agricultural and Bioresource Engineering, University of Saskatchewan, Canada (May 2007).
7. Mr. Colm Everett Ph.D examination, UCD, Dunlin, Ireland (Feb 2006).
8. Ms. Aurora Valdez-Fragoso M.S. Thesis at the Universidad Autónoma de Chihuahua, México (Oct 2005).

#### Significant contributions in research, scholarship or creative activity:

*In the last 25 years, he (PI and Co-PI) has been awarded 85 grants totaling over \$20 million, published over 200 peer-reviewed publications and proceedings, and made over 350 regional, national, and international presentations.*

#### Refereed Publications in Journals and Books (Most recent list)

1. Wei, L., K. Muthukumarappan. 2016. Development of hydrocarbon biofuel from sunflower seed and sunflower meat oils over ZSM-5, Journal of Renewable and Sustainable Energy 8, 013109; doi:10.1063/1.494191.
2. Fallahi, P., Muthukumarappan, K., Singha, P., Sindelar, S. and Brown, M. 2016. A comparative study of the effects of non-starch polysaccharide gums on physical properties of extruded aquafeed J Food Process & Technol 06(06). doi: 10.4172/2157-7110.1000457.
3. Croat, J.R., M. Berhow, B. Karki, K. Muthukumarappan, and W.R. Gibbons. 2016. Conversion of Canola Meal into a High Protein Feed Additive with Solid-state Fungal Incubation Processes. Journal of American Oil Chemical Society, 10.1007/s11746-016-2796-7.
4. Fallahi, P., Muthukumarappan, K., and Rosentrater, K.A. 2016. Functional and structural properties of Corn, Potato, and Cassava starches in a single-screw extruder. International Journal of Food Properties 19(4): 768-788.
5. Singha, P. and Muthukumarappan. 2016. Quality changes during freezing and thawing of ginger and computer simulation of freezing time of cylindrical ginger. Food Science and Nutrition. (Early view) doi: 10.1002/fsn3.314.
6. Singh, S. K. and Muthukumarappan, K. 2016. Effect of feed moisture, extrusion temperature and screw speed on properties of soy white flakes based aquafeed: a response surface analysis. J. Sci. Food Agric. doi: 10.1002/jsfa.7339.

7. Singh, S. K. and Muthukumarappan, K. 2016. A viscosity model for soy white flakes based aquafeed dough in a single screw extruder. *Journal of Food Process Engineering*.
8. Singh, S. K. and Muthukumarappan, K. 2016. Rheological characterization and CFD simulation of soy white flakes based dough in a single screw extruder. *Journal of Food Process Engineering*.
9. Lohani, U. C. and Muthukumarappan, K. 2016. Influence of sequential treatment of fermentation, ultrasonication and extrusion cooking on antioxidant properties of sorghum flour. *Cereal Chemistry*.
10. Lohani, U. C. and Muthukumarappan, K. 2016. Influence of sequential treatment of fermentation, ultrasonication and extrusion cooking on antioxidant properties of Apple Pomace. *Journal of the Science of Food & Agriculture*.
11. Sundaram, V. and Muthukumarappan, K. 2016. Impact of afex™ pretreatment and extrusion pelleting on pellet physical properties and sugar recovery from corn stover, prairie cord grass, and switchgrass. *Applied biochemistry and biotechnology*.
12. Sundaram, V. and Muthukumarappan, K. 2016. Influence of AFEX™ pretreated corn stover and switchgrass blending on the compaction characteristics and sugar yields of the pellets. *Journal of Industrial Crops and Products*. DOI:10.1016/j.indcrop.2015.12.072.
13. Biswas, A., K. Muthukumarappan, and L. Metzger. 2015. Understanding the role of natural cheese Ca and P content, residual lactose and salt-to-moisture ratio on process cheese functional properties: Cheese hardness and flowability/meltability. *International Journal of Dairy Technology* 68(1): 44-53.
14. Muthukumarappan, K., and C. Karunanithy. 2015. Chapter on 'Extrusion Cooking' in *Food Processing/Food Engineering* by CRC Press. Pp 245-258.
15. Lohani, U. C. and Muthukumarappan, K. 2015. Effect of Drying Methods and Ultrasonication in Improving the Antioxidant Activity and Total Phenolic Content of Apple Pomace Powder. *Journal of Food Research* 4(2): 68-77.
16. Singh, S.K. and Muthukumarappan, K. 2015. Single Screw Extrusion Processing of Soy White Flakes Based Catla Feed. *Journal of Food Research* 4(1): 1-9.
17. Lohani, U. C. Fallahi, P. and Muthukumarappan, K. 2015. Comparison of ethyl acetate with hexane for oil extraction from various oilseeds. *Journal of American Oil Chemists Society* 92: 743-754.
18. Sundaram, V., Muthukumarappan, K. and Kamireddy, S. 2015. Effect of Ammonia Fiber Expansion (AFEX™) Pretreatment on Compression Behavior of Corn stover, Prairie cord grass and Switchgrass. *Journal of Industrial Crops and Products* 45-54.
19. Karki, B., Muthukumarappan, K., Wang, Y., Dale, B., Balan, V., W. Gibbons. Physical Characteristics of AFEX-Pretreated and Densified Switchgrass, Prairie Cord Grass, and Corn Stover. *Biomass and Bioenergy* 78: 164-174.
20. Karki, B., Muthukumarappan, K., Wang, Y., Karunanithy, C., Gibbons, W.R. 2015. Effect of Sequential Ammonia Fiber Expansion (AFEX) Pretreatment and Densification on Dynamic Moisture adsorption characteristics of Corn stover and switchgrass samples. *Applied Engineering in Agriculture*, 453-464.
21. Zhao, X., Wei, L., Julson, J. and Muthukumarappan, K. 2015. Effects of cold press operating conditions on vegetable oil fatty acid profiles. *Journal of Sustainable Bioenergy Systems*, 199-214.
22. Zhao, X., Wei, L., Julson, J. and Muthukumarappan, K. 2015. Comparison of Upgrading Sunflower Seed Oil and Sunflower Meat Oil for Future Bio-jet Fuel Production. *New Biotechnologies*, 205-209.
23. Cao, Y., Gu, Z., Muthukumarappan, K. and Gibbons, W. 2015. Separation of Glucosinolates from Camelina Seed Meal via Membrane and Acidic Aluminum Oxide Column. *Journal of Liquid Chromatography & Related Technologies* 38(13): 1273-1278.

Honors and Awards (More than 50 honors and awards received and some of the most recent awards are listed below)

1. Awarded Distinguished Professor and Graduate Coordinator
2. Elected for 2012 ASABE Fellow Grade.
3. Received 2012 F.O. Butler Award for Excellence in Service.
4. Elected as a panel reviewer for 2010-2013 Fulbright Specialist Program.
5. Invited panel leader for a 2012 USDA-DOE biomass project site visit.
6. Received 2011 SDSU Griffith Faculty Research Award.
7. Invited panel leader for a 2011 USDA-DOE biomass project site visit.
8. Received 2010 SDSU International/Global Research Award.
9. Keynote Address at the 2010 International Bioenergy Conference, Beijing, China.
10. Nominated, Elected and Received Prestigious 2009 ASABE Evelyn E. Rosentreter Standards Award.
11. Nominated and Elected as an Editor of International Journal of Food and Bioprocess Technology.
12. Finalist for 2009 Global Venture Challenge International Competition at Oak Ridge National Laboratory, Oak Ridge, TN.
13. Nominated, Elected and Received 2008 ASABE Standards Developer Award.
14. Nominated, Elected and Received 2008 SDSU College of Engineering Researcher of the Year Award.
15. Nominated and Elected as the Editor of International Journal of Food Properties.
16. Nominated and Received 2006 F.O. Butler Foundation Award for Excellence in Research at South Dakota State University.
17. Nominated and Received 2006 ABS College Dean's Team award for developing a bioprocessing center at South Dakota State University in collaboration with SD School of Mines and Technology.
18. Nominated and Received 2006 IFT-Food Engineering Division Outstanding Volunteer of the Year Award.
19. Nominated and Received 2005 IFT-Great Plains Section Outstanding Volunteer of the Year Award.
20. Nominated and Received 2004 Sigma Xi President's Award.
21. Nominated and Received 2004 Outstanding Diversity Service Award.
22. Nominated and Received 2004 ASAE Standards Developer Award.
23. Nominated and Received 2003 Gamma Sigma Delta Research Award.
24. Nominated and Received 2001 Sigma Xi Researcher of the Year Award.
25. Nominated and Received Outstanding Agricultural Engineering Graduate Student Award, ASAE, 1993
26. Nominated and Received Hisamatsu prize, Asian Institute of technology, 1988
27. Premier Irrigation Gold Medal, Tamil Nadu Agricultural University, 1986
28. B.M. Lakshmipathi Medal, Tamil Nadu Agricultural University, 1986
29. G.R. Varadharajulu Memorial Medal, Tamil Nadu Agricultural University, 1986
30. Associated Agencies Medal, Tamil Nadu Agricultural University, 1986
31. TNAU Merit Scholarship, Tamil Nadu Agricultural University, 1982