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CURRICULUM VITAE

January 2020

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ACADEMIC TRAINING

2001	Certificate	University of Manitoba	University Management
1987	Ph.D.	University of Saskatchewan	Agricultural Engineering
1982	M.Sc.	University of Manitoba	Agricultural Engineering
1980	B.Tech.	G.B. Pant University, India	Agricultural Engineering

AWARDS AND RECOGNITIONS

2019 Dr. S. S. Misra Lifetime Achievement Award, Applied Zoologists Research Association, (AZRA), Bhubaneswar, India
2019 Sir John William Dawson Medal for "important contributions of knowledge in multiple domains", the Royal Society of Canada
2019 John Ogilvie Research Innovation Award for "innovation and/or ingenuity related to horizontal airflow grain dryer" and mentioned Dr. Jayas as "Father of Horizontal Drying" in the citation for the award, Canadian Society for Bioengineering
2019 Doctor of Science (earned), University of Saskatchewan
2019 K.Y. Lo Medal for "significant engineering contributions at the international level", Engineering Institute of Canada
2018 Order of Canada (Officer) for "advancements to agricultural practices worldwide, and for promotion of academic and scientific research in Canada"
2017 Sukup Global Food Security Award, American Society of Agricultural and Biological Engineers
2016 Doctor of Science (Honoris Causa), Tamil Nadu Agricultural University, Coimbatore, India
2016 Superior Paper Award, American Society of Agricultural and Biological Engineers
2016 Winegard Visiting Lecturer, University of Guelph, Guelph, ON
2015 Inducted as Honorary Fellow of the Geoscientists Canada
2015 The National Research Award for a Co-authored paper, The Research Council, Sultanate of Oman
2015 Honorary Life Membership, Association of Professional Engineers and Geoscientists of Manitoba
2015 Partners in Research Engineering Ambassador Award, Partners in Research, London, ON
2015 Best Paper Award, Indian Society of Agricultural Engineers
2014 Kishida International Award, American Society of Agricultural and Biological Engineers
2013 Inducted as Foreign Fellow of the National Academy of Sciences, India
2013 Education Leadership Award presented at the World Education Congress, Mumbai, India
2012 Best Paper Award, Indian Society of Agricultural Engineers

2012 Queen Elizabeth II Diamond Jubilee Medal
2012 Alumni Achievement Award, University of Saskatchewan
2011 Inducted as Fellow of the Indian Society of Agricultural Engineers
2011 Inducted as Foreign Fellow of the National Academy of Agricultural Sciences, India
2010 Inducted as Fellow of the Engineering Institute of Canada
2009 Inducted as Fellow of Engineers Canada
2009 Inducted as Fellow of the Royal Society of Canada
2008 Brockhouse Canada Prize for interdisciplinary research in science and engineering, Natural Sciences and Engineering Research Council of Canada
2008 Dr. John M. Bowman Memorial Winnipeg Rh Institute Foundation Award for excellence in research, the University of Manitoba
2008-17 Regular High Level Visiting Scientist for outstanding achievements in the field of Information Science and Technology, Beijing University of Posts and Telecommunications (BUPT)
2008 Engineers Canada Meritorious Service Award for Professional Service
2007 Inducted as Fellow of the Canadian Institute of Food Science and Technology
2007 Distinguished Agrologist Award, Manitoba Institute of Agrologists
2007 Inducted as Fellow of the Canadian Academy of Engineering for research in grain storage and service to the profession
2007 Canadian Society for Bioengineering (CSBE) Maple Leaf Award in recognition of distinguished leadership in agricultural and biological engineering through teaching, research and professional service (the highest award of the CSBE)
2007 Dr. Anand Prakash Award, Applied Zoologists Research Association (India)
2006 Inducted as Fellow of the Agricultural Institute of Canada for research in grain storage
2006 Harry Toop Memorial Science for Saskatchewan Lecture Award, University of Saskatchewan, Saskatoon, SK
2005 American Society of Agricultural and Biological Engineers Honorable Mention Paper Award in recognition of authorship of a contribution to agricultural engineering literature of exceptional merit as published by the Society
2005 Inducted as Fellow of the Canadian Society for Bioengineering in recognition of outstanding contributions to the Engineering profession, in all aspects including academic, research and international activities
2005 Inducted as Fellow of the American Society of Agricultural and Biological Engineers for outstanding accomplishments as a researcher, teacher, administrator, author, and contributor to technical societies
2005 Inspirational Professor of the Year Award presented by the University of Manitoba Students' Union and the University Teaching Services for significant influence and contribution to education
2004 Outstanding Service Award, Association of Professional Engineers and Geoscientists of Manitoba
2004 Excellence in Graduate Teaching Award presented by the Graduate Students Association of the University of Manitoba
2004 Information Technology Division of the American Society of Agricultural Engineers Select Paper Award in recognition of an outstanding 2004 Annual Meeting paper
2004 Canadian Institute of Food Science and Technology W.J. Eva Award for outstanding contributions to food science through research and science
2004 Distinguished Professor in recognition of outstanding distinction in research and in scholarship, and of a significant record in teaching
2003 Institute Award, the highest award given by the Canadian Institute of Food Science and Technology
2002-09 Tier I Canada Research Chair in Stored-Grain Ecosystems
2001 Agriculture and Agri-Food Canada Agcellence Award for contribution and success of the

Canadian Storage CD-ROM

2001 Canadian Society for Agricultural Engineering John Clark Award for outstanding research in grain drying and storage and extraordinary contributions to the profession and society

2001 Sigma Xi, Senior Scientist Award for outstanding research contributions

2001 University of Manitoba Merit Award for Research, Scholarly Work and Other Creative Activities

2000 Inducted as Fellow of the Applied Zoologists Research Association (India)

2000 Best Feature Article Award for "Aseptic processing and packaging: promising packaging technique for food processing industries" published in Indian Food Industry in 1999

1999 University of Manitoba Merit Award for Research, Scholarly Work and Other Creative Activities

1999 Agricultural Engineer of the Year, North Central Region of the American Society of Agricultural Engineers

1999 Certificate of Teaching Excellence, University of Manitoba Teaching Service and University of Manitoba Student Union

1997 University of Manitoba Outreach Award for contributions to professional societies

1997 Superior Academic Performance Award, Faculty of Engineering, University of Manitoba

1996 Association of Professional Engineers of the Province of Manitoba Merit Award for outstanding scholarly achievements

1995 Canadian Society for Agricultural Engineering Young Agricultural Engineer of the Year Award for outstanding achievements in teaching, research, and contributions to the profession

1994 American Society of Agricultural Engineers Engineering Achievement Young Researcher Award for research contributions in grain storage

1993 University of Manitoba Merit Award for Research, Scholarly Work and Other Creative Activities

1992 Applied Zoologists Research Association (India) Young Scientist Award for research contribution on controlled atmosphere storage

1991 University of Manitoba Merit Award for Teaching, Research, and Service

1990 University of Manitoba Merit Award for Teaching

1988 University of Manitoba Merit Award for Teaching, Research, and Service

1987 Rh Award for Outstanding Contributions to Scholarship and Research in the Applied Sciences Category

1984 Travel Grant to attend Scholarly Conference from the Canadian Bureau for International Education, Ottawa

1983-85 University of Saskatchewan Graduate Scholarship

1983 Vice-Chancellor's Gold Medal upon Graduation at G.B. Pant University

1980-81 University of Manitoba Graduate Fellowship

1977-78 Indian Council of Agriculture Research Skill Contest Awards

1976-77 Best Co-leader 4-H Club

1975-79 G.B. Pant University Merit Scholarship

1975 Indian Council of Agriculture Research Skill Contest Awards

1974-79 Government of India National Merit Scholarship

1972-74 Grade XI and XII National Merit Scholarship

1967-72 Grade VI to Grade X Merit Scholarship

CAREER

2018-19 Interim-President, Natural Sciences and Engineering Research Council of Canada (NSERC)

2011- Vice-President (Research and International) and Distinguished Professor, University of Manitoba, Winnipeg, Manitoba

2009-11 Vice-President (Research) and Distinguished Professor, University of Manitoba, Winnipeg, Manitoba
2009 Vice-President (Research), Distinguished Professor, and Canada Research Chair in Stored-Grain Ecosystems, University of Manitoba, Winnipeg, Manitoba
2009 Acting Vice-President (Research), Distinguished Professor, and Canada Research Chair in Stored-Grain Ecosystems, University of Manitoba, Winnipeg, Manitoba
2004-08 Associate Vice-President (Research), Distinguished Professor, and Canada Research Chair in Stored-Grain Ecosystems, University of Manitoba, Winnipeg, Manitoba
2004-05 Interim Director, Richardson Centre for Functional Foods and Nutraceuticals, University of Manitoba, Winnipeg, Manitoba
2003 Acting Vice-President (Research) and Canada Research Chair in Stored-Grain Ecosystems, University of Manitoba, Winnipeg, Manitoba
2002-04 Associate Vice-President (Research) and Canada Research Chair in Stored-Grain Ecosystems, University of Manitoba, Winnipeg, Manitoba
2001-02 Associate Vice-President (Research) and Professor, University of Manitoba, Winnipeg, Manitoba
1999-01 Professor and Associate Dean (Research), Faculty of Agricultural and Food Sciences, University of Manitoba, Winnipeg, Manitoba
1997-99 Professor and Head, Biosystems Engineering Department, University of Manitoba, Winnipeg, Manitoba
1995-97 Professor, Biosystems Engineering Department, University of Manitoba, Winnipeg, Manitoba
1993-95 Professor, Agricultural Engineering Department, University of Manitoba, Winnipeg, Manitoba
1989-93 Associate Professor, Agricultural Engineering Department, University of Manitoba, Winnipeg, Manitoba
1985-89 Assistant Professor, Agricultural Engineering Department, University of Manitoba, Winnipeg, Manitoba
1982 Pool Officer, Agricultural Engineering Department, G.B. Pant University, Pantnagar, India
1982-85 Graduate Research Associate, Agricultural Engineering Department, University of Saskatchewan, Saskatoon, Saskatchewan
1980-81 Graduate Research Assistant, Agricultural Engineering Department, University of Manitoba, Winnipeg, Manitoba
1980 Research Associate, Agricultural Engineering Department, G.B. Pant University, Pantnagar, India

MOST SIGNIFICANT RESEARCH CONTRIBUTIONS

Mathematical Models of Stored Grain Ecosystems

The interactions among biotic and abiotic factors make the mathematical modelling of stored-grain ecosystems a challenging problem. My research team is the first group in the world to develop three-dimensional mathematical models of heat, moisture and carbon dioxide (CO_2) transfer in grain bulks.
Value of the Contribution: The mathematical models are used for better management of stored grain. For example, the modelling of heat and CO_2 transfer in stored grain has provided a basis for developing alternatives to the use of pesticides for the control of insects in grains and to improve the quality of grain for human consumption.

Measurement of Parameters for Mathematical Modelling

To develop a comprehensive model of stored-grain ecosystems it is necessary to integrate the heat, moisture and gas transfer models with the biological models. There is a lack of experimental data on engineering parameters (e.g., thermal properties of grains, diffusion coefficient of gases through bulk grain, sorption of CO_2 by grain) and on insect movement under moisture, temperature and CO_2 gradients and population

dynamics of insects under sub-optimal conditions. My research team has conducted several experimental studies to fill this gap and further studies are ongoing.
Value of the Contribution: The development of a comprehensive model of stored-grain ecosystems as a management tool.

Hyperspectral Imaging for Grain Quality Monitoring
The potential of near-infrared (NIR) hyperspectral imaging to detect insect-damaged wheat kernels and fungal infection in wheat was investigated by my research team. Both linear discriminant analysis and quadratic discriminant analysis classifiers classified 85-100% healthy and insect-damaged wheat kernels. Healthy and fungal infected kernels were classified with close to 100% accuracy.
Value of the Contribution: With further studies, the NIR hyperspectral imaging has the potential for use in grain quality assessment by detecting insect infestation, insect damaged kernels and fungal-infected kernels.

Carbon Dioxide and Odour Sensors for Detection of Incipient Spoilage of Grains
As grains spoil, carbon dioxide, heat and moisture are produced and off odours are released. Currently, temperatures are used for monitoring incipient spoilage of grain. Because of low thermal diffusivity of grains, temperature sensors must be within 0.5 m of the spoiling grain to detect incipient spoilage whereas carbon dioxide and odours can be detected at much farther locations (3 to 4 m) using sensors of high resolution, which can be predicted by our mathematical models.
Value of the Contribution: The focus of my research has been to characterize volatiles produced by insects, fungi and spoiling grains and to develop sensors for detecting such volatiles and carbon dioxide (US Patent issued).

Machine Vision for Automation of Grain Handling
As grain moves from on-farm storage to primary elevators (grain handling facilities) and finally to grain terminals for export, at several points along the grain handling system, grain must be identified and its contents quantified for decisions to automate grain handling. My research team has focussed on the implementation of machine vision technology by: (i) developing sample presentation devices which can partially separate bulk grain into individual kernels; (ii) developing algorithms to separate remaining touching kernels in acquired images; and (iii) developing and evaluating morphological, colour, texture and wavelet features for classification of grain (types and classes), defects of grain and dockage components. Our current sample presentation device can image 300 g samples of grain in 2 min.
Value of the Contribution: The developed system will form the basis for automation of many different aspects of grain handling such as grain identification during railcar unloading, as a controller for the grain cleaning equipment, and for monitoring grain composition during ship loading. My team has developed a robot (Grainobot) to automatically open railcars, analyse samples and then continue with the unloading of the railcar or stop unloading if content is not correct to avoid the wrong material being unloaded.

Energy-efficient drying systems
Drying of grains, oilseeds, and pulses is frequently a necessity on Canadian farms. One usual drying method is to force atmospheric air continuously through stored bulks in the upward vertical direction. My research team was the first to demonstrate experimentally that the resistance to airflow is about 50% to 60% of the resistance to airflow in vertical direction. The reasons for this difference were further explained using an ultra-high resolution X-ray computed tomography (CT) scanner by acquiring X-ray CT images from the grain bulks at a resolution of 120 to 250 μm. The bulk samples of wheat, barley, flax seed, peas and mustard were scanned along horizontal and vertical directions. The images were analyzed for both two and three dimensions to understand the pore structure of the bulk grain.
Value of the Contribution: The information was used to design and evaluate a near-ambient air dryer (in collaboration with Ag Growth Industries) which forced air horizontally through grain, made grain drying more energy efficient, and resulted in more uniform grain drying compared to the current commercial

systems which force air vertically. Based on my research such systems have been developed in Canada, China, Ukraine and USA.

Detection of Insects in Grain

In the past, we have organized workshops to share our research results and to seek input on the industry's needs for future research and information. In all of these workshops, the detection of low levels of insect infestation in grain was identified as the top priority research need because detection of low levels of infestation is a slow process (results may take over 6 hours). In that period, grain may be filled in large bins and ships thus contaminating large quantities and increasing the cost of fumigation. My research team has investigated many techniques based on soft x-rays, thermal imaging, electronic nose, mechanical separation and microwaves for rapid detection of insects. A device was developed and evaluated (US Patent issued) for rapid detection of insects in grains using a household microwave, and another device was developed for insect detection by characterizing interactions of insects with microwaves (US Patent pending).

Value of the Contribution: Early detection of insects would reduce the cost of chemical fumigation by treating the small quantity of infested grain rather than a large contaminated bin filled with grain. This would also help in enforcing the Canada Grain Act that specifies a zero tolerance for stored-product insects in grain.

RESEARCH GRANTS AND CONTRACTS HELD Total $29,646,169

2018-20	$40,250	Climate change and invasive alien species (IAS) (Agriculture and Agri-Food Canada)
2018-23	$260,000	Mathematical models of stored-grain ecosystems for management of stored grains (Natural Sciences and Engineering Research Council of Canada: Discovery Grant)
2015-16	$1,981,065	Post-harvest grain handling for a safe and sustainable food supply (Canada Foundation for Innovation, Research Manitoba, and Agriculture and Agri-Food Canada) (Principal Investigator: J. Paliwal)
2015	$36,140	Assessment of ozone for controlling insects in grain (Ozograin International Inc.: Contract)
2014-15	$25,000	Assessment of materials for designing cables for monitoring temperature and humidity in stored grains (Natural Sciences and Engineering Research Council of Canada: Engage Grant)
2013-15	$128,857	Feasibility of bag storage system for canola under prairie conditions (Agriculture and Agri-Food Canada and Canola Council of Canada Cluster program)
2013-18	$140,000	Mathematical modelling of stored-grain ecosystems (Natural Sciences and Engineering Research Council of Canada: Discovery Grant)
2011-12	$11,700	Storage of pinto beans (Canadian Grain Commission: Research Contract)
2010-12	$159,000	Storage and handling characteristics of new varieties of high oil content canola (Agriculture and Agri-Food Canada and Canola Council of Canada Cluster program)
2010-13	$238,500	Feasibility of bag storage system for canola under prairie conditions (Agriculture and Agri-Food Canada and Canola Council of Canada Cluster program)
2011-13	$200,000	Development of technologies and capacity building for primary processing, drying and on-farm storage of pulses in India (Manitoba Ministry of Innovation, Energy and Mines and Indian Ministry of Food Processing Industries: Operating Grant)
2009-14	$250,000	The 2008 Brockhouse Canada Prize for interdisciplinary research in science and engineering (Natural Sciences and Engineering Research Council of Canada)

2008-13	$188,750	Mathematical modeling of stored-grain ecosystems (Natural Sciences and Engineering Research Council of Canada: Discovery Grant)
2007-09	$3,200,000	Enhancement of biomedical imaging and biosensors (Western Economic Diversification: Infrastructure Grant) (Principal Investigator: J. LoVetri)
2007-08	$11,000	Operating support to organize Manitoba Science, Engineering and Technology Day (Natural Sciences and Engineering Research Council of Canada: Prairie Office, Government of Manitoba, Manitoba Hydro, Association of Professional Engineers and Geoscientists of Manitoba)
2007-09	$42,625	Do the current near-ambient grain drying guidelines prevent mycotoxin production? (Agri-Food Research & Development Initiative: Operating Grant)
2007-10	$485,081	Design, fabrication and evaluation of an integrated CO2-odour sensor for grain quality monitoring (Natural Sciences and Engineering Research Council of Canada: Strategic Grant)
2007-09	$42,625	Characterising conditions that produce mycotoxins in wheat (Canadian Wheat Board: Operating Grant)
2007-08	$23,000	Development of horizontal airflow grain drying system (Ag Growth Industries: Operating Grant)
2007	$10,000	Quality foods and novel bioproducts workshop (Natural Sciences and Engineering Research Council of Canada: Prairie Office)
2006-07	$7,500	Operating support to organize Manitoba Science, Engineering and Technology Day (Natural Sciences and Engineering Research Council of Canada: Prairie Office, Government of Manitoba, Association of Professional Engineers and Geoscientists of Manitoba)
2006	$2,500	Operating support to organize undergraduate poster competition (Natural Sciences and Engineering Research Council of Canada: Prairie Office)
2005-10	$1,250,000	Operating support for the Richardson Centre for Functional Foods and Nutraceuticals (Agri-Food Research Development Initiative)
2005-07	$10,000,000	Establishment of Bio-processing Facility (Western Economic Diversification, Manitoba Government, Agri-Food industry)
2005-08	$318,500	Integration of near-infrared spectroscopy and machine vision for quality assessment of cereal grains (Natural Sciences and Engineering Research Council of Canada: Strategic Grant)
2004-08	$400,000	Enhancement of grain storage research infrastructure (Canadian Wheat Board)
2003-08	$175,000	A holistic approach to mathematical modelling of stored-grain ecosystems (Natural Sciences and Engineering Research Council of Canada: Discovery Grant)
2002-05	$481,203	Bioprotection of fermented meats from E. Coli O157: H7 using Lactobacillus reuteri or allylisothiocyanate (Natural Sciences and Engineering Research Council of Canada: Strategic Grant; Holley R.A.: Principal Investigator)
2002-09	$1,400,000	Canada Research Chair in Stored-Grain Ecosystems (Canada Research Chairs Secretariat)
2002-05	$420,000	Support for the development of functional foods and nutraceuticals centre (Manitoba Rural Adaptation Council)
2001-02	$7,000	Design, plan and support a conference on genomics (National Research Council)
2001-02	$115,381	Oxygen transmission rate test system for films (Natural Sciences and Engineering Research Council of Canada: Equipment Grant; Jung H. Han: Principal Investigator)
2000-01	$100,000	Infrastructure support for stored-grain ecosystem facility for research and design (Manitoba Hydro)
2000-01	$10,000	Determination of engineering characteristics of sunflower and canola meal

		pellets (ADM Agri-Industries Ltd.)
2000-01	$9,579	Purchase of a data/video projector for teaching, research and extension (Faculty of Agricultural and Food Sciences Endowment Fund)
2000-01	$19,800	Development of a CFI proposal for establishing a precision farming systems centre (Western Economic Diversification)
1999-00	$50,000	Establishment of a Research and Development Centre for Functional Foods and Nutraceuticals (Manitoba Rural Adaptation Council; Manitoba Agriculture and Food; Manitoba Industry, Trade, and Mines; Western Economic Diversification)
1999-00	$35,000	Development of an expert system and mathematical models for stored-grain ecosystems (Agriculture and Agri-Food Canada)
1999-00	$8,000	Distribution of fresh chilled meat (Faculty of Agricultural and Food Sciences & Office of Research Services, University of Manitoba)
1999-00	$9,000	An integrated design experience in the Biosystems Engineering program (Program Development Fund, University of Manitoba)
1999-01	$4,600,000	Stored-grain ecosystem facility for research and design (Canada Foundation for Innovation, Government of Manitoba, Western Economic Diversification, Manitoba Hydro, Agriculture and Agri-Food Canada, and the Grain Industry)
1999-03	$134,400	Mathematical modelling of stored-grain ecosystems (Natural Sciences and Engineering Research Council of Canada: Research Grant)
1998-01	$351,189	Machine vision for automation of operations at grain handling facilities
1998-99	$14,000	Purchase and installation of a retail display cabinet, University of Manitoba
1998-99	$4,315	Installation of a data/video projector in room 202 Agricultural Engineering Building, AFS Endowment Fund
1997-98	$2,000	Development of research collaboration with Tamil Nadu Agricultural University, Coimbatore, India (President's Office, University of Manitoba)
1997-98	$18,000	High voltage electric pulse pasteurization of liquid foods (University of Manitoba Research Development Fund, Faculty of Agricultural and Food Sciences)
1997-98	$1,830	Funding to attend a short course on "Teaching Teachers to Teach Engineering (T4E)" (Faculty Development Initiative, University of Manitoba)
1997-98	$18,166	Near-infrared transmittance accessory for measuring food quality (Natural Sciences and Engineering Research Council of Canada: Equipment Grant)
1996-99	$196,650	Design, development and testing of a returnable container for distribution of fresh-chilled meat (Natural Sciences and Engineering Research Council of Canada: Strategic Project)
1996-97	$50,173	Request for a temperature- and humidity-controlled chamber (Natural Sciences and Engineering Research Council of Canada: Equipment Grant)
1996-97	$11,000	Request for developing an image processing facility (President's Research Grant, University of Manitoba)
1996-97	$62,000	Request for developing an image processing facility (Natural Sciences and Engineering Research Council of Canada: Collaborative Research and Development Grant)
1995-99	$128,740	Modified atmosphere storage of grains − a holistic approach (Natural Sciences and Engineering Research Council of Canada: Research Grant)
1995-97	$128,400	Machine vision for classification of grains and associated foreign materials (Prince Rupert Grain Ltd., Agriculture Canada, and Natural Sciences and Engineering Research Council of Canada Research Partnership Grant)
1995-97	$40,000	Agriculture and Agri-Food Canada Matching Investment Initiative with Manitoba Pool Elevators and Liquid Carbonic, Inc. for research on modified atmosphere storage of grains (N.D.G. White: Principal Investigator)

1995-97	$40,000	Supplement for the NSERC postdoctoral fellowship for Dr. Trever Crowe (Prince Rupert Grain Ltd.)
1995-96	$42,000	Funds for developing an image processing facility based on a line-scan camera (Prince Rupert Grain Ltd.)
1995-96	$45,000	Optimization of control systems for near-ambient grain drying (Agriculture Canada grant for Efficient use of Energy in Sustainable Agriculture) (N.D.G. White: Principal Investigator)
1995-96	$10,500	Development of a chilled-fresh meat distribution system (University of Manitoba Research Development Fund)
1995-96	$2,500	Development of research cooperation between University of Manitoba and Tamil Nadu Agricultural University (President's Research Grant, University of Manitoba)
1995-96	$1,100	Development of research cooperation between University of Manitoba and Paisley University, Scotland (British Council)
1994-97	$150,000	Controlling insects in welded-steel farm-bins and off-farm facilities (Natural Sciences and Engineering Research Council of Canada: Strategic Grant)
1994-97	$72,000	Determination of the storage and handling characteristics of hulless barley (SeCan, Agriculture Canada, and Natural Sciences and Engineering Research Council of Canada Research Partnership Grant)
1994-95	$12,000	Aseptic processing of solid-liquid food systems (President's Research Grant, University of Manitoba)
1994-95	$13,100	Foreign Researcher Award for Dr. Sreenarayanan (Natural Sciences and Engineering Council of Canada)
1994-95	$76,522	Differential scanning calorimetry system (Natural Sciences and Engineering Research Council of Canada) (S. Cenkowski: Principal Investigator)
1993-95	$37,250	Optimization of control systems for near-ambient grain drying (Manitoba Hydro, Winnipeg)
1993-94	$4,484	Request for purchase of a microscope (University of Manitoba Research Grants Committee)
1993-94	$5,634	ACU Development Fellowship for Dr. E.A. Smith (Association of Commonwealth Universities)
1993-95	$65,000	Development of an expert system for stored grain management (Agriculture Canada grant for Efficient use of Energy in Sustainable Agriculture) (N.D.G. White, Principal Investigator)
1993-94	$22,737	Purchase and installation of two hopper-bottom bins (Natural Sciences and Engineering Research Council of Canada)
1993-94	$5,300	Partial support towards Postdoctoral Fellowship for Dr. N. Singh (University of Manitoba Postdoctoral Fellowship Committee)
1992-95	$90,000	Digital image processing for classification for components of foreign material (Agriculture Canada and Natural Sciences and Engineering Research Council of Canada Research Partnership Program) (N.R. Bulley: Principal investigator)
1992-95	$98,400	Modified atmospheres for storage of grains and oilseeds (Natural Sciences and Engineering Research Council of Canada)
1992-93	$12,000	International symposium on stored grain ecosystems (Canadian Agri-Food Development Initiative, Agriculture Canada)
1992-93	$10,000	Development of a sample presentation device for digital image processing (Prince Rupert Grain Ltd.) (N.R. Bulley: Principal investigator)
1992-93	$1,100	Undergraduate student research assistant to work on Controlled atmosphere storage of wheat (Canada Manpower Challenge '92)
1992-93	$11,250	Energy conservation in potato storages (Manitoba Hydro, Winnipeg)
1992-93	$1,500	International symposium on stored grain ecosystems (Natural Sciences and

		Engineering Research Council of Canada)
1992-93	$21,655	Multi-tasking computer workstation (Natural Sciences and Engineering Research Council of Canada) (W.E. Muir: Principal investigator)
1992-93	$12,300	International Scientific Exchange Award for Dr. J. Weres (Natural Sciences and Engineering Research Council of Canada)
1991-95	$61,972	Determining foreign material in wheat using image processing (Prince Rupert Grain Ltd.) (N.R. Bulley: Principal investigator)
1991-92	$1,320	Undergraduate student research assistant to work on Controlled atmosphere storage of wheat (Canada Manpower Challenge '91)
1990-94	$115,960	Energy conservation in potato storage (Energy, Mines and Resources Energy Program) (G. Mazza: Principal investigator)
1990-93	$246,750	Control of rusty grain beetles in farm granaries using modified atmospheres (Natural Sciences and Engineering Research Council of Canada)
1990-92	$12,000	Partial support towards Postdoctoral Fellowship for Dr. Antoni Ryniecki (University of Manitoba Postdoctoral Fellowship Committee)
1990-91	$31,262	Purchase of a temperature and humidity controlled chamber (Natural Sciences and Engineering Research Council of Canada)
1990-91	$864	Work on Controlled atmosphere storage of wheat (Canada Manpower Challenge '90)
1990-91	$12,000	International Scientific Exchange Award for Dr. S. Pabis (Natural Sciences and Engineering Research Council of Canada)
1990-91	$9,383	Purchase of data storage device for an image processing system (Research Development Fund, University of Manitoba)
1989-92	$72,000	Modified atmospheres for control of pests in stored cereals (Natural Sciences and Engineering Research Council of Canada)
1989-90	$5,800	Use of mineral oil as a dust suppressant (Amoco Oil Co., Chicago)
1989-90	$28,890	Temperature data acquisition system (Natural Sciences and Engineering Research Council of Canada)
1988-89	$931	Undergraduate student research assistant to work on Thin-layer Drying of Canola Project (Manitoba Careerstart '88)
1988-89	$1,456	Undergraduate student research assistant to work on Controlled Atmosphere Storage of Wheat project (Canada Manpower Challenge '88)
1988-89	$3,000	Purchase of a gas chromatograph (University of Manitoba Research Grants Committee)
1988-89	$14,000	Development of a demonstration unit for the teaching of heat and moisture balances (University of Manitoba Academic Development Fund)
1987-88	$1,500	Undergraduate student research assistant to work on Controlled Atmosphere Storage of Wheat project (Canada Manpower Challenge '87)
1987-88	$2,500	Rh Award for Outstanding Contributions to Scholarship and Research in the Applied Sciences category
1987-88	$990	Undergraduate student research assistant to work on Thin-Layer Drying of Canola project (Manitoba Careerstart '87)
1986-89	$45,000	Controlled atmosphere storage of wheat (Natural Sciences and Engineering Research Council of Canada)
1986-88	$20,000	Thin-layer drying and wetting characteristics of canola (Agriculture Canada)
1986-88	$28,500	Engineering properties and spoilage susceptibility of canola meal (Canola Council of Canada)
1986-87	$3,560	Development of a thin-layer drying and wetting facility in the Department of Agricultural Engineering (University of Manitoba Research Grants Committee)
1986-87	$5,800	Pressure patterns in grain storage bins (University of Manitoba Academic Development Fund)

1986-87 $2,500 Purchase of a vacuum grain unloader (University of Manitoba Research Grants Committee)

SUMMARY OF PUBLICATIONS ***(Total: 949)***

Papers currently in the review process for publication in refereed journals: **4**
Papers published in refereed journals (*includes accepted but not submitted papers*): **409**
Patents: **3**
Papers published (in full) in refereed conference proceedings: **16**
Invited presentations: **128**
Books and monographs: **10**
Chapters contributed to books: **53**
Papers in non-refereed journals: **23**
Papers published (in full) in non-refereed conference proceedings: **46**
Conference papers (in full), presented mainly at ASABE (ASAE) and CSBE (CSAE) meetings: **248**
Engineering reports: **9**

PUBLICATIONS

Authors or co-authors identified with an * wrote these publications based on their work done under the supervision of Dr. Jayas as Research Students (B.Sc., M.Sc., Ph.D.), Postdoctoral Fellows, or Visiting Researchers.

Refereed Publications (submitted for publication)

Huang, Y., D. Wang, F. Jian, D.S. Jayas, C. Chen and D. Wang. 2020. Mortality of different stages of *Plodia interpunctella* (Hübener) at low temperatures to 98% nitrogen mixed with 2% oxygen (submitted in November 2019 for publication in *Journal of Economic Entomology*).

Jian, F., M.A.A. Mamun and D.S. Jayas. 2020. Effect of field treatments on equilibrium moisture contents and safe storage of canola (submitted in October 2019 for publication in *Canadian Biosystems Engineering*).

Chakraborty, S.K., N.K. Mahanti, S.K. Mansoori, M.K. Tripathi, N. Kotwaliwale and D.S. Jayas. 2020. Classification of maize kernels based on aflatoxin B1 content using vis-NIR hyperspectral imaging (submitted in June 2019 for publication in *Journal of Food Science and Technology*).

Zhang, C., A. Dai, H. Yang, Z. Wu, X. Zhou and D.S. Jayas. 2019. Influence of moisture of wheat on acoustic wave propagation characteristics (submitted in April 2019 for publication in *Transactions of the ASABE*).

Refereed Publications (accepted for publication or published)

Jian, F., P. Tang, M.A.A. Mamun and D.S. Jayas. 2020. Effect of field treatment on microfloral respiration and storability of canola under different storage conditions (accepted in October 2019 for publication in *American Journal of Plant Sciences*).

Sharma, A., C.J. Demianyk, N.D.G. White and D.S. Jayas. 2020. The effects of grasshopper carcasses as dockage in stored wheat. *Journal of Stored Products Research*, **85**:101533.

Jian, F., J. Liu and D.S. Jayas. 2019. A new mathematical model to simulate sorption, desorption and hysteresis of stored canola during aeration. *Drying Technology* (https://doi.org/10.1080/07373937.2019.1690501).

Zhang, C., Z. Shi, H. Yang, X. Zhou, Z. Wu and D.S. Jayas. 2019. A novel, portable and fast moisture content measuring method for grains based on an ultra-wideband (UWB) radar module and the mode matching method. *Sensors*, **19**, 4224; doi:10.3390/s19194224 www.mdpi.com/1424-

8220/19/19/4224/pdf).

Li, J., H. Zhou, D.S. Jayas and Q. Jia. 2019. Construction of a dataset of stored-grain insects images for intelligent monitoring. *Applied Engineering in Agriculture*, **35**(4):647-655.

Jian, F., Mamun Md. Abdullah Al, N.D.G. White, D.S. Jayas, P.G. Fields and J. McCombe. 2019. Safe storage times of FINOLA® hemp (*Cannabis sativa*) seeds with dockage. *Journal of Stored Products Research*, **83**:34-43.

Zhou, H., H. Miao, J. Li, F. Jian and D.S. Jayas. 2019. A low-resolution image restoration classifier network to identify stored-grain insects from images of sticky boards. *Computers and Electronics in Agriculture*, **162**:593-601.

Narendran, R.B.**,** F. Jian, D.S. Jayas**,** P.G. Fields and N.D.G. White. 2019. Segregation of canola, kidney bean, and soybean in wheat bulks during bin loading. *Powder Technology*, **344**:307-313.

Jian, F., R.B. Narendran and D.S. Jayas. 2019. Segregation in stored grain bulks: kinematics, dynamics mechanisms, and minimization – a review. *Journal of Stored Products Research*, **81**:11-21.

Jian, F., S. Yavari, R.B. Narendran and D.S. Jayas. 2018. Physical properties of Finola® hemp seeds: clean and containing dockages. *Applied Engineering in Agriculture*, **34**(6):1017-1026.

Senthilkumar*, T., F. Jian, D.S. Jayas and R.B. Narendran. 2018. Physical properties of white and black beans (*Phaseolus vulgaris*). *Applied Engineering in Agriculture*, **34**(4):749-754.

Jian, F., D. Divagar, J. Mhaiki, D.S. Jayas, P.G. Fields and N.D.G. White. 2018. Static and dynamic methods to determine adsorption isotherms of hemp seed (*Cannabis sativa* L.) with different percentages of dockage. *Food Science & Nutrition*, **6**:1629-1640.

Reimer, A., K. Wiebe, J. Rao, B. Yao, Y. Gui, F. Jian, P.G. Fields, D.S. Jayas, C. Hu. 2018. A compact microwave device for monitoring single insect activity. *Biosystems Engineering*, **175**:27-35.

Zhang C., H. Dang, X. Zhou, H. Zhou and D. S. Jayas. 2018. A novel method for measuring the color of edible oil on the Lovibond scale based on spectral detection and convolutional neural network. *Transactions of ASABE*, **61**(3):839-847.

Jian*, F., D.S. Jayas, P.G. Fields, N.D.G. White, H. Zhang and P. Tang. 2018. Demography of rusty grain beetle in stored bulk wheat: Part I, population dynamics at different temperatures and grain bulk sizes. *Environmental Entomology*, **47**(2):244-255.

Jian*, F., D.S. Jayas, P.G. Fields and N.D.G. White. 2018. Demography of rusty grain beetle in stored bulk wheat: Part II. mathematical modelling to characterize and predict population dynamics. *Environmental Entomology*, **47**(2):256-263.

Jian, F. and D.S. Jayas. 2018. Characterization of isotherms and thin layer drying of red kidney beans, Part I, choosing appropriate empirical and semi-theoretical models. *Drying Technology*, **36**(14):1696-1706. https://doi.org/10.1080/07373937.2017.1422515.

Jian, F. and D.S. Jayas. 2018. Characterization of isotherms and thin layer drying of red kidney beans, Part II, three dimensional finite element models to estimate transient mass and heat transfer coefficients and water diffusivity. *Drying Technology*, **36**(14):1707-1718. https://doi.org/10.1080/07373937.2017.1422514.

Shen Y., H. Zhou, J. Li, F. Jian and D.S. Jayas. 2018. Detection of stored-grain insects using deep learning. *Computers and Electronics in Agriculture*, **145**:319-325.

Jian*, F., D.S. Jayas, P.G. Fields and N.D.G. White. 2017. Water absorption and cooking time of red kidney beans (*Phaseolus vulgaris* L.): part II - Mathematical models of water absorption. *International Journal of Food Science and Technology*, **52**:2412–2421. doi:10.1111/ijfs.13525.

Jian*, F., D.S. Jayas, P.G. Fields and N.D.G. White. 2017. Water absorption and cooking time of red kidney beans (*Phaseolus vulgaris* L.): part I - effect of freezing and drying condition on water absorption and cooking time. *International Journal of Food Science and Technology*, **52**:2031–2039. doi:10.1111/ijfs.13481.

Senthilkumar*, T., D.S. Jayas, N.D.G. White, P.G. Fields and T. Gräfenhan. 2017. Detection of ochratoxin A contamination in stored wheat using near-infrared hyperspectral imaging. *Infrared Physics and Technology*, **81**:228-235.

Divekar*, M.T., C. Karunakaran, R. Lahlali, S. Kumar, V. Chelladurai*, X. Liu, F. Borondics, S.

Shanmugasundaram and D.S. Jayas. 2017. Effect of microwave treatment on the cooking and macronutrient qualities of pulses. *International Journal of Food Properties*, **20**(2):409-422.

Li, J., D. Sun, H. Pu and D.S. Jayas. 2017. Determination of trace thiophanate-methyl and its metabolite carbendazin with teratogenic risk in red bell pepper (*Capsicumannuum* L.) by surface-enhanced Raman imaging technique. *Food Chemistry*, **218**:543-552.

Ravikanth*, L., D.S. Jayas, N.D. G. White, P.G. Fields and D. Sun. 2017. Extraction of spectral information from hyperspectral data and application of hyperspectral imaging for food and agricultural products (DOI 10.1007/s11947-016-1817-8), published online in *Food and Bioprocess Technology*).

Chelladurai*, V., F. Jian*, D.S. Jayas, N.D.G. White, P.G. Fields and A. Manickavasagan. 2016. Feasibility of storing canola at different moisture contents in silo bags under Canadian Prairie conditions. *Canadian Biosystems Engineering*, **58**:3.9-3.20.

Ravikanth*, L., C.B. Singh, D.S. Jayas and N.D.G. White. 2016. Performance evaluation of a model for the classification of contaminants from wheat using near-infrared hyperspectral imaging. *Biosystems Engineering*, **147**:248-258.

Ravikanth*, L., V. Chelladurai*, D.S. Jayas and N.D.G. White. 2016. Detection of broken kernels content in bulk wheat samples using near-infrared hyperspectral imaging. *Agricultural Research*, **5**(3):285-292.

Jian*, F., S. Doak*, D.S. Jayas, P.G. Fields and N.D.G. White. 2016. Comparison of insect detection efficiency by different detection methods. *Journal of Stored Products Research*, **69**:138-142.

Senthilkumar*, T., D.S. Jayas, N.D.G. White, P.G. Fields and T. Gräfenhan. 2016. Detection of fungal infection and Ochratoxin A contamination in stored barley using near-infrared hyperspectral imaging. *Biosystems Engineering*, **147**:162-173.

Senthilkumar*, T., D.S. Jayas, N.D.G. White, P.G. Fields and T. Gräfenhan. 2016. Near-infrared (NIR) hyperspectral imaging: theory and applications to detect fungal infection and mycotoxin contamination in food products. *Journal of Grain Storage Research*, **78** (Special Issue of *Indian Journal of Entomology*):91-99.

Senthilkumar*, T., D.S. Jayas, N.D.G. White, P.G. Fields and T. Gräfenhan. 2016. Detection of ochratoxin A in stored barley using near-infrared (NIR) hyperspectral imaging. *Journal of Grain Storage Research*, **78** (Special Issue of *Indian Journal of Entomology*):114-120.

Jayas, D.S. 2016. Grain storage research: current status and future needs. *Journal of Grain Storage Research*, **78** (Special Issue of *Indian Journal of Entomology*):1-6.

Chelladurai*, V., F. Jian*, D.S. Jayas, N.D.G. White, A. Manickavasagan and P.G. Fields. 2016. Quality changes in 12% moisture content canola stored in silo bags under Canadian prairie conditions. *Journal of Stored Products Research*, **68**:33-43.

Karuppiah*, K., T. Senthilkumar*, D.S. Jayas and N.D.G. White. 2016. Detection of fungal infection in five different pulses using near-infrared hyperspectral imaging. *Journal of Stored Products Research*, **65**:13-18.

Senthilkumar*, T., D.S. Jayas, N.D.G. White, P.G. Fields and T. Gräfenhan. 2016. Detection of fungal infection and Ochratoxin A contamination in stored wheat using near-infrared hyperspectral imaging. *Journal of Stored Products Research*, **65**:30-39.

Kheiralipour*, K., H. Ahmadi, A. Rajabipour, S. Rafiee, M. Javan-Nikkhah, D.S. Jayas and K. Siliveru*. 2016. Detection of fungal infection in pistachio kernel by long-wave near-infrared hyperspectral imaging technique. *Quality Assurance and Safety of Crops & Foods*, **8**(1):129-135.

Zhou, H., Y. Xu, C. Zhang, D.S. Jayas and X. Zhou. 2015. Implementation of low-power wireless sensor network protocol stack for real-time monitoring of warehouses. *Applied Engineering in Agriculture*, **31**(5):697-706.

Jian*, F., P.G. Fields, K. Hargreaves*, D.S. Jayas and N.D.G. White. 2015. Chill-coma and minimum movement temperatures of stored-products beetles in stored wheat. *Journal of Economic Entomology*, **108**(5):2471-2178.

Chelladurai*, V., V.R. Parker*, D.S. Jayas and N.D.G. White. 2015. Evaluation of a horizontal air flow in-bin grain drying system. *Applied Engineering in Agriculture*, **31**(5):793-798.

Senthilkumar*, T., D.S. Jayas and N.D.G. White. 2015. Detection of different stages of fungal infection in stored canola using near-infrared hyperspectral imaging. *Journal of Stored Products Research*, **63**:80-88.

Jian*, F., V. Chelladurai*, D.S. Jayas and N.D.G. White. 2015. Three-dimensional transient heat, mass, and momentum transfer model to predict conditions of canola stored inside silo bags under Canadian Prairie conditions: Part I - soil temperature model. *Transactions of the ASABE*, **58**(4):1127-1134.

Jian*, F., V. Chelladurai*, D.S. Jayas and N.D.G. White. 2015. Three-dimensional transient heat, mass, and momentum transfer model to predict conditions of canola stored inside silo bags under Canadian Prairie conditions: Part II model of canola bulk temperature and moisture content. *Transactions of the ASABE*, **58**(4):1135-1144.

Jian*, F., D.S. Jayas, P.G. Fields and N.D.G. White. 2015. A new method to rapidly detect rusty grain beetle, *Cryptolestes ferrugineus* (Stephens), in stored grain. *Journal of Stored Products Research*, **63**:1-5.

Vadivambal*, R., V. Chelladurai*, F. Jian* and D.S. Jayas. 2015. Tensile strength and elongation of hemp and sisal ropes at different temperatures. *Canadian Biosystems Engineering*, **57**:3.9-3.12.

Ravikanth*, L., C.B. Singh, D.S. Jayas and N.D.G. White. 2015. Classification of contaminants from wheat using near-infrared hyperspectral imaging. *Biosystems Engineering*, **135**:73-86.

Amudhasurabi*, A., D.S. Jayas and K. Alagusundaram. 2015. Assessment of effectiveness of subsidized food grain distribution in India with respect to rice and wheat. *Indian Journal of Marketing*, **45**(1):49-59.

Amudhasurabi*, A., J. Carlberg, D.S. Jayas and L. Ravikanth*. 2015. Impacts of grain handling and transportation system deregulation on farm profitability in Manitoba Province of Canada. *International Journal of Business Management & Research*, **5**(2):37-44.

Singh, C.B., D.S. Jayas and R. Larson. 2015. Assessment of fan control strategies for in-bin natural air drying of wheat in western Canada. *Canadian Biosystems Engineering*, **56**:3.25-3.36.

Moses*, J.A., D.S. Jayas and K. Alagusundaram. 2015. Climate change and its implications on stored food grains. *Agricultural Research*, **4**(1):21-30.

Mahesh*, S., D.S. Jayas, J. Paliwal and N.D.G. White. 2015. Hyperspectral imaging to classify and monitor quality of agricultural materials. *Journal of Stored Products Research*, **61**:17-26.

Moses*, J.A., V. Chelladurai*, D.S. Jayas and K. Alagusundaram. 2015. Simulation and validation of airflow distribution patterns in hopper-bottom bins filled with wheat. *Applied Engineering in Agriculture*, **31**(2):303-311.

Jian*, F., D.S. Jayas, N.D.G. White, P.G. Fields and N. Howe*. 2015. An evaluation of insect expulsion from wheat samples by microwave treatment for disinfestation. *Biosystems Engineering*, **130**:1-12.

Mahesh*, S., D.S. Jayas, J. Paliwal and N.D.G. White. 2015. Comparison of partial least squares regression (PLSR) and principal components regression (PCR) methods for protein and hardness predictions using the near-infrared (NIR) hyperspectral images of bulk samples of Canadian wheat. *Food and Bioprocess Technology*, **8**:31-40.

Zhou, H., J. Liu, D.S. Jayas, Z. WU and X. Zhou. 2014. A distributed parameter model predictive control method for forced air ventilation through stored grain. *Applied Engineering in Agriculture*, **30**(4):593-600.

Moses*, J.A., D.S. Jayas and K. Alagusundaram. 2014. Simulation and validation of airflow distribution patterns in bins filled with canola. *Journal of Agricultural Engineering*, **51**(4):14-20.

Jian*, F. and D.S. Jayas. 2014. Understanding the initiation and development of hotspots in storage-grain ecosystems. *Journal of Applied Zoological Researches*, **25**(1):01-10.

Moses*, J.A., D.S. Jayas and K. Alagusundaram. 2014. Simulation and validation of airflow pressure patterns for horizontal airflow through bulk canola. *Trends in Biosciences*, **7**(17):2385-2391.

Moses*, J.A., D.S. Jayas and K. Alagusundaram. 2014. Three-dimensional airflow pressure patterns in flat-bottom bins filled with barley for different duct configurations. *Trends in Biosciences*, **7**(17):2392-2396.

Jian*, F., D.S. Jayas and N.D.G. White. 2014. Heat production of stored canola seeds under airtight and non-airtight conditions. *Transactions of the ASABE*, **57**(4):1151-1162.

Sun*, K., F. Jian*, D.S. Jayas, N.D.G. White and P.G. Fields. 2014. Physical properties of three varieties of high-oil canola and one variety of low-oil canola. *Transactions of the ASABE*, **57**(2):599-608.

Arlene-Christina*, G.D., D.S. Jayas, P.G. Fields, F. Jian*, N.D.G. White and K. Alagusundaram. 2014. Movement of *Cryptolestes ferrugineus* out of wheat kernels and their mortalities under elevated temperatures. *Journal of Stored Products Research*, **59**:292-298.

Jian*, F., D.S. Jayas, Q. Zhang, J. Paliwal and K. Sun*. 2014. Inter- and multi-disciplinary studies of stored grain ecosystems: latest development in grain storage research at University of Manitoba in Canada. *Grain Storage* (in Chinese), **43**(3): 6-18.

Teena*, M.A., A. Manickavasagan, L. Ravikanth*, D.S. Jayas. 2014. Near infrared (NIR) hyperspectral imaging to classify fungal infected dates. *Journal of Stored Products Research*, **59**:306-313.

Sun*, K., F. Jian*, D.S. Jayas and N.D.G. White. 2014. Quality changes in high and low oil content canola during storage: Part I - safe storage time under constant temperatures. *Journal of Stored Products Research*, **59**:320-327.

Jian*, F., K. Sun*, V. Chelladurai*, D.S. Jayas and N.D.G. White. 2014. Quality changes in high and low oil content canola during storage: Part II mathematical models to predict germination. *Journal of Stored Products Research*, **59**:328-337.

Jian*, F., D.S. Jayas, N.D.G. White and P.G. Fields. 2014. Carbon dioxide sorption by stored canola under different storage conditions. *Journal of Stored Products Research*, **59**:101-107.

Chidananda*, K.P., V. Chelladurai*, D.S. Jayas, K. Alagusundaram, N.D.G. White and P.G. Fields. 2014. Respiration of pulses stored under different storage conditions. *Journal of Stored Products Research*, **59**:42-47.

Kaliramesh*, S., V. Chelladurai*, D.S. Jayas and K. Alagusundaram. 2014. Determination of main constituents in green gram using near-infrared hyperspectral imaging. *Journal of Agricultural Engineering*, **51**(1):7-15.

Manickavasagan, A., H. N. Al-Shekaili, G. Thomas, M.S. Rahman, N. Guizani and D. S. Jayas. 2014. Edge detection features to evaluate hardness of dates using monochrome images. *Food and Bioprocess Technology*, **7**:2251-2258.

Chelladurai*, V., K. Karuppiah*, D.S. Jayas, P.G. Fields and N.D.G. White. 2014. Detection of *Callosobruchus maculatus* (F.) infestation in soybean using soft X-ray and NIR hyperspectral imaging techniques. *Journal of Stored Products Research*, **57**:43-48.

Jian*, F., V. Chelladurai*, D.S. Jayas, C.J. Demianyk and N.D.G. White. 2014. Interstitial concentrations of carbon dioxide and oxygen in stored canola, soybean, and wheat seeds under various conditions. *Journal of Stored Products Research*, **57**:63-72.

Jian*, F., D.S. Jayas and N.D.G. White. 2014. How many kilograms of grain per sample unit is big enough? Part I - Comparison of insect detection and density estimation between manual probe sampling and Insector® system. *Journal of Stored Products Research*, **56**:60-66.

Jian*, F. D.S. Jayas and N.D.G. White. 2014. How many kilograms of grain per sample unit is big enough? Part II - Simulation of sampling from grain mass with different insect densities and distribution patterns. *Journal of Stored Products Research*, **56**:67-80.

Mahesh*, S., D.S. Jayas, J. Paliwal and N.D.G. White. 2014. Comparing two statistical discriminant models with a back propagation neural network model for pairwise classification of location and crop year specific wheat classes at three selected moisture contents using NIR hyperspectral images. *Transactions of the ASABE*, **57**(1):63-74.

Moses*, J.A., D.S. Jayas and K. Alagusundaram. 2013. Resistance to airflow through bulk grains, oilseeds and other agricultural products - a review. *Journal of Agricultural Engineering*, **50**(4):1-13.

Sun*, K., Y.W. Qian, V. Spicer, N.D.G. White and D.S. Jayas. 2013. Feasibility of protein fingerprinting technology for detecting *Tribolium castaneum* (Herbst) insect fragments in wheat flour. *Journal of Stored Products Research*, **55**:36-40.

Mohan*, A.L. and D.S. Jayas. 2013. Automation of unloading grain cars using the "Grain-o-bot". *Transactions of the ASABE*, **56**(5):1837-1845.

Jian*, F., B. Subramanyam, D.S. Jayas and N.D.G. White. 2013. Models to predict mortality of *Tribolium castaneum* (Coleoptera: Tenebrionidae) exposed to elevated temperatures during structural heat treatments. *Journal of Economic Entomology*, **106**(5):2247-2258.

Purohit*, P., D. S. Jayas, V. Chelladurai* and B.K. Yadav. 2013. Microwave treatment of mung bean (*Vigna radiata*) for reducing the cooking time. *Applied Engineering in Agriculture*, **29**(4):547-555.

Kheiralipour*, K., H. Ahmadi, A. Rajabipour, S. Rafiee, M. Javan-Nikkhah and D.S. Jayas. 2013. Development a new threshold based classification model for analyzing thermal imaging data to detect fungal infection of pistachio kernels. *Agricultural Research*, **2**(2):127-131.

Manickavasagan, A., P.M.K. Alahakoon, T.K. Al-Busaidi, S. Al-Adawi, A.K. Al-Wahaibi, A.A. Al-Raeesi, R. Al-Yahyai and D.S. Jayas. 2013. Disinfestation of stored dates using microwave energy. *Journal of Stored Products Research*, **55**:1-5.

Jian*, F., D.S. Jayas and N.D.G. White. 2013. Specific heat, thermal diffusivity, and bulk density of genetically-modified canola with high oil content at different moisture contents, temperatures, and storage times. *Transactions of the ASABE*, **56**(3):1077-1083.

Teena, M.A., A. Manickavasagan, A. Mothershaw, S. El Hadi and D.S. Jayas. 2013. Potential of machine vision techniques for detecting fecal and microbial contamination of food products: A review. *Food and Bioprocess Technology*, **6**:1621-1634.

Wu*, J., D.S. Jayas, Q. Zhang, N.D.G. White and R.K. York. 2013. Feasibility of the application of electronic nose technology to detect insect infestation in wheat. *Canadian Biosystems Engineering*, **55**:3.1-3.9.

Ravikanth*, L., D.S. Jayas, K. Alagusundaram and V. Chelladurai*. 2013. Measurement of physical dimensions of Mung bean. *Journal of Agricultural Engineering*, **50**(1):59-62.

Sravanthi*, B., D.S. Jayas, K. Alagusundaram, V. Chelladurai* and N.D.G. White. 2013. Effect of storage conditions on red lentils. *Journal of Stored Products Research*, **53**:48-53.

Jian*, F., D. S. Jayas and N.D.G. White. 2013. Can ozone be a new control strategy for pests of stored grain? *Agricultural Research*, **2**(1):1-8.

Purohit*, P., D.S. Jayas, B. K. Yadav, V. Chelladurai*, P.G. Fields and N.D.G. White. 2013. Microwaves to control *Callosobruchus maculatus* in stored mung bean (*Vigna radiata*). *Journal of Stored Products Research*, **53**:19-22.

Emadi, T.A., C. Shafai, D.J. Thomson, M.S. Freund, N.D.G. White and D.S. Jayas. 2013. Polymer-based chemicapacitor sensor, for 1-Octanol and relative humidity detections at different temperatures and frequencies. *IEEE Sensors Journal*, **13**(2):519-527.

Rani*, P.R., V. Chelladurai*, D.S. Jayas, N.D.G. White and C.V. Kavitha-Abirami. 2013. Storage studies on pinto beans under different moisture contents and temperature regimes. *Journal of Stored Products Research*, **52**:78-85.

Mebatsion, H.K., J. Paliwal and D.S. Jayas. 2013. Automatic classification of non-touching cereal grains in digital images using limited morphological and color features. *Computers and Electronics in Agriculture*, **90**:99-105.

Kaliramesh*, S., V. Chelladurai*, D.S. Jayas, K. Alagusundaram, N.D.G. White and P.G. Fields. 2013. Detection of infestation by *Callosobruchus maculatus* in mung bean using near-infrared hyperspectral imaging. *Journal of Stored Products Research*, **52**:107-111.

Jian*, F., P.G. Fields, D.S. Jayas, N.D.G. White and M. Loganathan*. 2012. Measured and predicted temperatures in a grain processing building under heat treatment: I. Temperature profiles during heat treatment. *Canadian Biosystems Engineering*, **54**:3.1-3.8.

Jian*, F., P.G. Fields, D.S. Jayas, N.D.G. White and M. Loganathan*. 2012. Measured and predicted temperatures in a grain processing building under heat treatment: II. Mathematical modeling of heat and mass transfer during heat treatment. *Canadian Biosystems Engineering*, **54**:3.9-3.17.

Jian*, F., R. Larson, D.S. Jayas and N.D.G. White. 2012. Three dimensional temporal and spatial distribution of adult *Rhyzopertha dominica* in stored wheat and corn under different temperatures, moisture contents, and adult densities. *Journal of Economic Entomology*, **105**(4):1194-1204.

Ravikanth*, L., D.S. Jayas, K. Alagusundaram and V. Chelladurai*. 2012. Measurement of thermal properties of mung bean (*Vigna radiata*). *Transactions of the ASABE*, **55**(6):2245-2250.

Jian*, F., D.S. Jayas and N.D.G. White. 2012. Thermal conductivity, bulk density, and germination of a canola variety with high oil content under different temperatures, moisture contents, and storage periods. *Transactions of the ASABE*, **55**(5):1837-1843.

Jian*, F. and D.S. Jayas. 2012. The ecosystem approach to grain storage. *Agricultural Research*, **1**(2):148-156.

Jian*, F., R. Larson, D.S. Jayas and N.D.G. White. 2012. Three dimensional temporal and spatial distribution of adults of *Tribolium castaneum* (Coleoptera: Tenebrionidae) in stored wheat under different temperatures and adult densities. *Agricultural Research*, **1**(2):165-174.

Hossain*, M.E., G.M.A. Rahman, M.S. Freund, D.S. Jayas, N.D.G. White, C. Shafai and D.J. Thomson. 2012. Fabrication and optimization of a conducting polymer sensor array using stored grain model volatiles. *Journal of Agricultural and Food Chemistry*, **60**:2863-2873.

Mebatsion, H.K., J. Paliwal and D.S. Jayas. 2012. A novel, invariant elliptic Fourier coefficient based classification of cereal grains. *Biosystems Engineering*, **111**:422-428.

Jayas, D.S. 2012. Grain storage for food security and safety: research at the University of Manitoba, Canada. *Journal of Agricultural Engineering*, **49**(1):1-12.

Senthilkumar*, T., C.B. Singh*, D.S. Jayas and N.D.G. White. 2012. Detection of fungal infection in canola using near-infrared hyperspectral imaging. *Journal of Agricultural Engineering*, **49**(1):21-27.

Jian*, F., R. Larson, D.S. Jayas and N.D.G. White. 2012. Three dimensional temporal and spatial distribution of adult *Oryzaephilus surinamensis* and *Sitophilus oryzae* in stored wheat under different temperatures, moisture contents, and adult densities. *Journal of Stored Products Research*, **49**:155-165.

Jayas, D.S. 2012. Storing grains for food security and sustainability. *Agricultural Research*, **1**(1):21-24.

Hossain*, M.E., M.S. Freund, D.S. Jayas, N.D.G. White, C. Shafai and D.J. Thomson. 2012. Carbon black polymer sensor array for incipient grain spoilage monitoring. *Agricultural Research*, **1**(1):87-94.

Mebatsion, H.K., J. Paliwal and D.S. Jayas. 2012. Evaluation of variations in the shape of grain types using principal components analysis of the elliptic Fourier descriptors. *Computers and Electronics in Agriculture*, **80**:63-70.

Senthilkumar*, T., D.S. Jayas, N.D.G. White, M.S. Freund, C. Shafai, and D.J. Thomson. 2012. Characterization of volatile organic compounds released by granivorous insects in stored wheat. *Journal of Stored Products Research*, **48**:91-96.

Zare*, D., D.S. Jayas and C.B. Singh*. 2012. A generalized dimensionless model for deep bed drying of paddy. *Drying Technology*, **30**:44-51.

Singh*, C.B., D.S. Jayas, J. Paliwal and N.D.G. White. 2012. Fungal damage detection in wheat using short-wave near-infrared hyperspectral and digital colour imaging. *International Journal of Food Properties*, **15**:11-24.

Vadivambal*, R., V. Chelladurai*, D.S. Jayas and N.D.G. White. 2011. Detection of sprout-damaged barley using thermal imaging. *Agricultural Engineering International: CIGR Journal*, **13**(2):1-6.

Zhang*, W., C.B. Singh*, D.S. Jayas and N.D.G. White. 2011. Influence of growing location on features extracted from colour images of wheat and detection of foreign material represented by barley. *Biosystems Engineering*, **110**:348-350.

Jian*, F., R. Larson, D.S. Jayas and N.D.G. White. 2011. Three dimensional spatial distribution of adults of *Cryptolestes ferrugineus* (Coleoptera: Laemophloeidae) in stored wheat under different temperatures, moisture contents, and adult densities. *Journal of Stored Products Research*, **47**:293-305.

Nithya*, U., V. Chelladurai*, D.S. Jayas and N.D.G. White. 2011. Safe storage guidelines for durum wheat. *Journal of Stored Products Research*, **47**:328-333.

Jian*, F., R. Larson, D.S. Jayas and N.D.G. White. 2011. Evaluation of sampling units and sampling plans for adults of *Cryptolestes ferrugineus* (Coleoptera: Laemophloeidae) in stored wheat under different temperatures, moisture contents, and adult densities. *Journal of Stored Products Research*, **47**:334-340.

Singh*, C.B., D.S. Jayas, F. Borondics and N.D.G. White. 2011. Synchrotron based infrared imaging study of compositional changes in stored wheat due to infection with *Aspergillus Glaucus*. *Journal of Stored Products Research*, **47**:372-377.

Hemis*, M., C.B. Singh*, D.S. Jayas and A. Bettahar. 2011. Simulation of coupled heat and mass transfer in granular porous media: Application to the drying of wheat. *Drying Technology*, **29**:1267-1272.

Ramalingam*, G., S. Neethirajan*, D.S. Jayas and N.D.G. White. 2011. Characterization of the influence of moisture content on the morphological features of single wheat kernels using machine vision. *Applied Engineering in Agriculture*, **27**(3):403-409.

Hemis*, M., C.B. Singh* and D.S. Jayas. 2011. Microwave-assisted thin layer drying of wheat. *Drying Technology*, **29**:1240-1247.

Loganathan*, M., D.S. Jayas, P.G. Fields and N.D.G. White. 2011. Low and high temperatures for the control of cowpea beetle, *Callosobruchus maculatus* (F.) (Coleoptera: Bruchidae) in chickpeas. *Journal of Stored Products Research*, **47**:244-248.

Mahesh*, S., D.S. Jayas, J. Paliwal and N.D.G. White. 2011. Identification of wheat classes at different moisture levels using near-infrared hyperspectral images of bulk samples. *Sensing and Instrumentation for Food Quality and Safety*, **5**:1-9.

Vadivambal*, R. and D.S. Jayas. 2011. Applications of thermal imaging in agriculture and food industry - a review. *Food and Bioprocess Technology- an International Journal*, **4**(2):186-199.

Mohapatra, D, S. Mishra*, C.B. Singh* and D.S. Jayas. 2011. Postharvest processing of banana: opportunities and challenges. *Food and Bioprocess Technology- an International Journal*, **4**(3):327-339.

Bhuvaneswari, K., P.G. Fields, N.D.G. White, A.K. Sarkar, C.B. Singh* and D.S. Jayas. 2011. Image analysis for detecting insect fragments in semolina. *Journal of Stored Products Research*, **47**:20-24.

Neethirajan*, S. and D.S. Jayas. 2011. Nanotechnology for the food and bioprocessing industries. *Food and Bioprocess Technology- an International Journal*, **4**:39-47.

Mohan*, L.A., C. Karunakaran, D.S. Jayas and N.D.G. White. 2010. Identification of hopper gate sprocket during grain-car unloading using digital image processing. *Transactions of the ASABE*, **53**(4):1313-1320.

Vadivambal*, R., V. Chelladurai*, D.S. Jayas and N.D.G. White. 2010. Detection of sprout-damaged wheat using thermal imaging. *Applied Engineering in Agriculture*, **26**(6):999-1004.

Vadivambal*, R., D.S. Jayas and N.D.G. White. 2010. Controlling life stages of *Tribolium castaneum* (Coleoptera: Tenebrionidae) in stored rye using microwave energy. *Canadian Entomologist*, **142**:369-377.

Emadi, T.A., C. Shafai, D.J. Thomson, M.S. Freund, N.D.G. White and D.S. Jayas. 2010. Polymer-based gas sensor on a thermally stable micro-cantilever. *Procedia Engineering (Proceedings Eurosensors XXIV)*, **5**:21-24.

Chelladurai*, V., D.S. Jayas and N.D.G. White. 2010. Thermal imaging for detecting fungal infection in stored wheat. *Journal of Stored Products Research*, **46**:174-179.

Neethirajan*, S., M.S. Freund, D.S. Jayas, C. Shafai, D.J. Thomson and N.D.G. White. 2010. Development of carbon dioxide (CO_2) sensor for grain quality monitoring. *Biosystems Engineering*, **106**:395-404.

Singh*, C.B., D.S. Jayas, J. Paliwal and N.D.G. White. 2010. Identification of insect-damaged wheat kernels using short-wave near-infrared hyperspectral and digital colour imaging. *Computers and Electronics in Agriculture*, **73**:118-125.

Rajaramanna*, R., D.S. Jayas and N.D.G. White. 2010. Comparison of deterioration of rye under two different storage regimes. *Journal of Stored Products Research*, **46**:87-92.

Manickavasagan*, A., D.S. Jayas, N.D.G. White and J. Paliwal. 2010. Wheat class identification using thermal imaging. *Food and Bioprocess Technology- an International Journal*, **3**:450-460.

Singh*, C.B., D.S. Jayas, J. Paliwal and N.D.G. White. 2010. Detection of midge-damaged wheat kernels using short-wave near-infrared hyperspectral and digital colour imaging. *Biosystems Engineering*, **105**:380-387.

Vadivambal*, R. and D.S. Jayas. 2010. Non-uniform temperature distribution during microwave heating of food materials - a review. *Food and Bioprocess Technology- an International Journal*, **3**:161-171.

Singh*, C.B., Choudhary*, R., D.S. Jayas and J. Paliwal. 2010. Wavelet analysis of signals in agriculture and food quality inspection. *Food and Bioprocess Technology- an International Journal*, **3**:2-12.

Seth, S.,Y.C. Agrawal, P.K. Ghosh* and D.S. Jayas. 2010. Effect of moisture content on the quality of soybean oil and meal extracted by isopropyl alcohol (IPA) and hexane. *Food and Bioprocess Technology- an International Journal*, **3**:121-127.

Vadivambal*, R., O.F. Deji*, D.S. Jayas and N.D.G. White. 2010. Disinfestation of stored corn using microwave energy. *Agriculture and Biology Journal of North America*, **1**(1):18-26.

Li, H., J. Paliwal, D.S. Jayas and N.D.G. White. 2009. Disinfestation of wheat using liquid nitrogen aeration. *International Journal of Biological and Life Sciences*, **5**(1):45-47.

Singh*, C.B., D.S. Jayas, J. Paliwal and N.D.G. White. 2009. Detection of insect-damaged wheat kernels using near-infrared hyperspectral imaging. *Journal of Stored Products Research*, **45**:151-158.

Vadivambal*, R., D.S. Jayas, V. Chelladurai* and N.D.G. White. 2009. Preliminary study of surface temperature distribution during microwave heating of cereals and oilseed. *Canadian Biosystems Engineering*, **51**:3.45-3.52.

Manickavasagan*, A., D.S. Jayas and R. Vadivambal*. 2009. Non-uniform microwave heating of ready-to-eat chicken pies. *Canadian Biosystems Engineering*, **51**:3.39-3.44.

Singh*, C.B., D.S. Jayas, J. Paliwal and N.D.G. White. 2009. Detection of sprouted and midge-damaged wheat kernels using near-infrared hyperspectral imaging. *Cereal Chemistry*, **86**(3):256-260.

Sathya*, G., D.S. Jayas and N.D.G. White. 2009. Safe storage guidelines for canola as the seeds slowly dry. *Canadian Biosystems Engineering*, **51**:3.29-3.38.

Hemis*, M., A. Bettahar, C.B. Singh*, D. Bruneau, and D.S. Jayas. 2009. An experimental study of wheat drying in thin layer and mathematical simulation of a fixed bed convective dryer. *Drying Technology*, **27**:1142-1151.

Wang*, F., D.S. Jayas, N.D.G. White and P.G. Fields. 2009. Combined effect of carbon monoxide mixed with carbon dioxide in air on mortality of stored-grain insects. *Journal of Stored Products Research*, **45**:247-253.

Vadivambal*, R. and D.S. Jayas. 2009. Comparison of ultrasound- and microwave-assisted drying of agricultural products - a review. *Stewart Postharvest Review*, **5**:2, 1-6.

Jian*, F., D.S. Jayas and N.D.G. White. 2009. Optimal environmental search and scattered orientations during movement of adult rusty grain beetles, *Cryptolestes ferrugineus* (Stephens), in grain bulks - suggested movement and distribution pattern. *Journal of Stored Products Research* **45**:177-183.

Jian*, F., D.S. Jayas and N.D.G. White. 2009. Temperature fluctuations and moisture migration in wheat stored for 15 months in a metal silo in Canada. *Journal of Stored Products Research*, **45**:82-90.

Narvankar*, D.S., C.B. Singh*, D.S. Jayas and N.D.G. White. 2009. Assessment of soft X-ray imaging for detection of fungal infection in wheat. *Biosystems Engineering*, **103**:49-56.

Choudhary*, R., S. Mahesh*, J. Paliwal and D.S. Jayas. 2009. Identification of wheat classes using wavelet features from near infrared hyperspectral images of bulk samples. *Biosystems Engineering*, **102**:115-127.

Ghosh*, P.K., D.S. Jayas and M.L.H. Gruwel. 2009. Measurement of water diffusivities in barley components using diffusion weighted imaging and validation with a drying model. *Drying Technology*, **27**:382-392.

Ghosh*, P.K. and D.S. Jayas. 2009. Use of spectroscopic data for automation in food processing industry. *Sensing and Instrumentation for Food Quality and Safety*, **3**:3-11.

Neethirajan*, S., D.S. Jayas and S. Sadistap*. 2009. Carbon dioxide (CO_2) sensors for the agri-food industry: a review. *Food and Bioprocess Technology- an International Journal,* **2**(2):115-121.

Jian*, F. and D.S. Jayas. 2009. Detecting and responding to resource and stimulus during the movements of *Cryptolestes ferrugineus* adults. *Food and Bioprocess Technology- an International Journal*, **2**(1):45-56.

Manickavasagan*, A., D.S. Jayas, N.D.G. White and J. Paliwal. 2008. Wheat class identification using thermal imaging: a potential innovative technique. *Transactions of the ASABE,* **51**(2):649-652.

Vadivambal*, R., D.S. Jayas, N.D.G. White. 2008. Mortality of stored-grain insects exposed to microwave energy. *Transactions of the ASABE*, **51**(2):641-647.

Burande, R.R., B.K. Kumbhar, P.K. Ghosh* and D.S. Jayas. 2008. Optimization of fluidized bed drying process of green peas using response surface methodology. *Drying Technology*, **26**(7):920-930.

Vadivambal*, R., D.S. Jayas and N.D.G. White. 2008. Determination of mortality of different life-stages of *Tribolium castaneum* (Coleoptera: Tenebrionidae) in stored barley using microwaves. *Journal of Economic Entomology*, **101**(3):1011-1021.

Mahesh*, S., A. Manickavasagan*, D.S. Jayas, J. Paliwal and N.D.G. White. 2008. Feasibility of near-infrared hyperspectral imaging to differentiate Canadian wheat classes. *Biosystems Engineering,* **101**(1):50-57.

Neethirajan*, S. and D.S. Jayas. 2008. Analysis of pore network in three-dimensional (3D) grain bulks using X-ray CT images. *Transport in Porous Media*, **73**:319-332.

Ghosh*, P.K., D.S. Jayas, E.A. Smith, M.L.H. Gruwel, N.D.G. White and P.A. Zhilkin. 2008. Mathematical modeling of wheat kernel drying with input from moisture movement studies using magnetic resonance imaging (MRI), Part I: Model development and comparison with MRI observations. *Biosystems Engineering,* **100**(3):389-400.

Ghosh*, P.K., D.S. Jayas, E.A. Smith, M.L.H. Gruwel and N.D.G. White. 2008. Mathematical modeling of wheat kernel drying with input from moisture movement studies using magnetic resonance imaging (MRI), Part II: Model comparison with published studies. *Biosystems Engineering,* **100**(4):547-554.

Manickavasagan*, A., G. Sathya* and D.S. Jayas. 2008. Comparison of illuminations to identify wheat classes using monochrome images. *Computers and Electronics in Agriculture,* **63**(2):237-244.

Neethirajan*, S., D.S. Jayas, N.D.G. White and H. Zhang. 2008. Investigation of 3D geometry of bulk wheat and pea pores using X-ray computed tomography images. *Computers and Electronics in Agriculture,* **63**(2):104-111.

Sathya*, G., D.S. Jayas and N.D.G. White. 2008. Safe storage guidelines for rye. *Canadian Biosystems Engineering*, **50**:3.1-3.8.

Manickavasagan*, A., G. Sathya*, D.S. Jayas and N.D.G. White. 2008. Wheat class identification using monochrome images. *Journal of Cereal Science*, **47**(3):518-527.

Manickavasagan*, A., D.S. Jayas and N.D.G. White. 2008. Thermal imaging to detect infestation by *Cryptolestes ferrugineus* inside wheat kernels. *Journal of Stored Products Research*, **44**(2):186-192.

Palanichamy*, A., D.S. Jayas and R.A. Holley. 2008. Predicting survival of *Escherichia coli* O157:H7 in dry fermented sausage using artificial neural networks. *Journal of Food Protection*, **71**(1):6-12.

Choudhary*, R., J. Paliwal and D.S. Jayas. 2008. Classification of cereal grains using wavelet, morphological, colour and textural features of non-touching kernel images. *Biosystems Engineering*, **99**(3):330-337.

Jian*, F., D.S. Jayas, N.D.G. White and E.A. Smith. 2008. Numerical analysis and parameter estimation technique for insect population redistribution models. *Ecological Modelling*, **211**(1-2):47-56.

Gruwel, M.L.H., P.K. Ghosh*, P. Latta and D.S. Jayas. 2008. On the diffusion constant of water in wheat. *Journal of Agricultural and Food Chemistry*, **56**(1):59-62.

Neethirajan*, S., D.J. Thomson, D.S. Jayas and N.D.G. White. 2008. Characterization of the surface morphology of durum wheat starch granules using atomic force microscopy. *Microscopy Research and Technique*, **71**(2):125-132.

Singh*, C.B., S. Bal, P.K. Ghosh* and D.S. Jayas. 2007. Thin layer drying model for natural convection drying of parboiled paddy. *International Agricultural Engineering Journal*, **16**(3-4):179-188.

Zhang*, H., J. Paliwal, D.S. Jayas and N.D.G. White. 2007. Classification of fungal infected wheat kernels using near-infrared hyperspectral imaging and support vector machine. *Transactions of the ASABE*, **50**(5):1779-1785.

Singh*, C.B., D.S. Jayas, J. Paliwal and N.D.G. White. 2007. Fungal detection in wheat using near-infrared hyperspectral imaging. *Transactions of the ASABE*, **50**(6):2171-2176.

Balasubramanian*, A., D.S. Jayas, W.G.D. Fernando, G. Li and N.D.G. White. 2007. Sensitivity analysis of DNA fingerprinting technique for detecting insect fragments in wheat flour. *Canadian Biosystems Engineering*, **49**:4.1-4.5.

Manickavasagan*, A., D.S. Jayas and N.D.G. White. 2007. Germination of wheat grains from uneven microwave heating in an industrial microwave dryer. *Canadian Biosystems Engineering*, **49**:3.23-3.27.

Tahir*, A.R., S. Neethirajan*, D.S. Jayas, M.A. Sahin, S.J. Symons and N.D.G. White. 2007. Evaluation of the effect of moisture content on cereal grains by digital image analysis. *Food Research International*, **40**:1140-1145.

Manickavasagan*, A. and D.S. Jayas. 2007. Infrared thermal imaging for agricultural and food applications. *Stewart Postharvest Review*, **5**:5.1-5.8.

Vadivambal*, R. and D.S. Jayas. 2007. Changes in quality of microwave-treated agricultural products C a review. *Biosystems Engineering*, **98**:1-16.

Seth, S., Y.C. Agrawal, P.K. Ghosh*, D.S. Jayas and B.P.N. Singh. 2007. Oil extraction rates of soya bean using isopropyl alcohol as solvent. *Biosystems Engineering*, **97**:209-217.

Ghosh*, P.K., D.S. Jayas, M.L.H. Gruwel and N.D.G. White. 2007. A magnetic resonance imaging study of wheat drying kinetics. *Biosystems Engineering*, **97**:189-199.

Neethirajan*, S., D.S. Jayas and C. Karunakaran*. 2007. Dual energy X-ray image analysis for classifying vitreousness in durum wheat. *Postharvest Biology and Technology*, **45**:381-384.

Vadivambal*, R., D.S. Jayas and N.D.G. White. 2007. Wheat disinfestation using microwave energy. *Journal of Stored Products Research*, **43**:508-514.

Jian*, F., D.S. Jayas, N.D.G. White and E.A. Smith. 2007. Two-dimensional diffusion of *Cryptolestes ferrugineus* (Stephens) (Coleoptera: Laemophloeidae) populations in stored wheat under constant environmental conditions. *Journal of Stored Products Research*, **43**:342-348.

Kashyap, M.C., Y.C. Agrawal, P.K. Ghosh*, D.S. Jayas, B.C. Sarkar and B.P.N. Singh. 2007. Oil extraction rates of enzymatically hydrolyzed soybeans. *Journal of Food Engineering*, **81**:611-617.

Neethirajan* S., D.S. Jayas and N.D.G. White. 2007. Detection of sprouted wheat kernels using soft X-ray image analysis. *Journal of Food Engineering*, **81**:509-513.

Neethirajan*, S., C. Karunakaran*, D.S. Jayas and N.D.G. White. 2007. Detection techniques for store-product insects in grain. *Food Control*, **18**:157-162.

Jian*, F., D.S. Jayas, N.D.G. White and P.G. Fields. 2007. A distributed-delay model to predict aging and survival rates of adults of *Cryptolestes ferrugineus* (Stephens) (Coleoptera: Laemophloeidae) in granaries filled with wheat. *Ecological Modelling*, **200**:412-420.

Manickavasagan*, A., D.S. Jayas, N.D.G. White and F. Jian*. 2006. Thermal imaging of a stored grain silo to detect a hot spot. *Applied Engineering in Agriculture*, **22**(6):891-897.

Manickavasagan*, A., D.S. Jayas and N.D.G. White. 2006. Non-uniformity of surface temperatures of grain after microwave treatment in an industrial microwave dryer. *Drying Technology*, **24**:1559-1567.

Kashyap, M.C., Y.C. Agrawal, P.K. Ghosh*, D.S. Jayas, B.C. Sarkar and B.P.N. Singh. 2006. Enzymatic hydrolysis pretreatment to solvent extraction of soy brokens for enhanced oil availability and extractability. *Journal of Food Processing and Engineering*, **29**:664-674.

Ghosh*, P.K., D.S. Jayas, M.L.H. Gruwel and N.D.G. White. 2006. Magnetic resonance image analysis to explain moisture movement during wheat drying. *Transactions of the ASABE*, **49**(4):1181-1191.

Jian*, F., D.S. Jayas and N.D.G. White. 2006. Vertical movement of adult rusty grain beetles, *Cryptolestes ferrugineus*, in stored corn and wheat at uniform moisture content. *Journal of Insect Science*, Article **11**:1-9.

Neethirajan*, S., C. Karunakaran*, S. Symons and D.S. Jayas. 2006. Classification of vitreousness in durum wheat using soft X-rays and transmitted light images. *Computers and Electronics in Agriculture*, **53**:71-78.

Neethirajan*, S., C. Karunakaran*, D.S. Jayas and N.D.G. White. 2006. X-ray computed tomography image analysis to explain the airflow resistance in grain bulks. *Biosystems Engineering*, **94**(4):545-555.

Koloor*, R.T., D.S. Jayas and N.D.G. White. 2006. Adsorption and desorption characteristics of buckwheat. *International Journal of Agriculture & Biology*, **8**(3):327-329.

Ghosh*, P.K., D.S. Jayas, M.L.H. Gruwel and N.D.G. White. 2006. Magnetic resonance imaging studies to determine the moisture removal patterns in wheat during drying. *Canadian Biosystems Engineering*, **48**:7.13-7.18.

Ghosh*, P.K., Y.C. Agrawal, D.S. Jayas and B.K. Kumbhar. 2006. Process development for osmo-hot air drying of carrots. *Journal of Food Science and Technology*, **43**(1):65-68.

Jayas, D.S. and C. Karunakaran*. 2005. Machine vision system in postharvest technology. *Stewart Postharvest Review*, **2**:2.1-2.9.

Zhang*, G., D.S. Jayas and N.D.G. White. 2005. Separation of touching grain kernels in an image by ellipse fitting algorithm. *Biosystems Engineering*, **92**(2):135-142.

Jian*, F., D.S. Jayas and N.D.G. White. 2005. Movement of *Tribolium castaneum* (Coleoptera: Tenebrionidae) adults in response to temperature gradients in vertical and horizontal wheat and corn columns. *Journal of Economic Entomology*, **98**(4):1413-1419.

Jian*, F., D.S. Jayas and N.D.G. White. 2005. Effects of temperature acclimation and age on movement of *Cryptolestes ferrugineus* (Coleoptera: Laemophloeidae) adults in response to temperature gradients. *Canadian Entomology*, **137**:71-82.

Jian*, F., D.S. Jayas, N.D.G. White and K. Alagusundaram. 2005. A three-dimensional, asymmetric, and transient model to predict grain temperatures in grain storage bins. *Transactions of the ASAE*, **48**(1):263-271.

Jian*, F., D.S. Jayas and N.D.G. White. 2005. Movement and distribution of adult *Cryptolestes ferrugineus* (Coleoptera: Laemophloeidae) in stored wheat in response to temperature gradients, dockage, and moisture differences. *Journal of Stored Products Research*, **41**(4):401-422.

Paliwal*, J., D.S. Jayas, N.S. Visen* and N.D.G. White. 2005. Quantification of variations in machine-vision-computed features of cereal grains. *Canadian Biosystems Engineering*, **47**:7.1-7.6.

Mohan*, L.A., C. Karunakaran*, D.S. Jayas and N.D.G. White. 2005. Classification of bulk cereals using visible and NIR reflectance characteristics. *Canadian Biosystems Engineering*, **47**:7.7-7.14.

Shunmugam*, G., D.S. Jayas, N.D.G. White and W.E. Muir. 2005. Diffusion of carbon dioxide through grain bulks. *Journal of Stored Products Research*, **41**(2):131-144.

Hulasare*, R.B., N.D.G. White and D.S. Jayas 2005. Effect of suboptimal temperatures and sublethal CO_2 levels on multiplication of *Tribolium castaneum* (Coleoptera: Tenebrionidae), alone or competing with *Cryptolestes ferrugineus* (Coleoptera: Laemophloeidae). *Journal of Stored Products Research*, **41**(2):187-197.

Abramson, D., R. Hulasare*, R.K. York, N.D.G. White and D.S. Jayas. 2005. Mycotoxins, ergosterol, and odor volatiles in durum wheat during granary storage at 16% and 20% moisture content. *Journal of Stored Products Research*, **41**(1):67-76.

Jian*, F., D.S. Jayas and N.D.G. White. 2004. Movement and distribution of adult rusty grain beetle, *Cryptolestes ferrugineus* (Coleoptera: Laemophloeidae), in stored wheat in response to different temperature gradients and insect densities. *Journal of Economic Entomology*, **97**(3):1148-1158.

Jian*, F., D.S. Jayas and N.D.G. White. 2004. Movement of adult *Cryptolestes ferrugineus* (Coleoptera: Laemophloeidae) in wheat: response to temperature gradients and gravity. *Environmental Entomology*, **33**(4):1003-1013.

Smith, E.A. and D.S. Jayas. 2004. Calculation and limitations of traverse time in designing forced ventilation systems. *Transactions of the ASAE*, **47**(5):1635-1642.

Ghosh*, P.K., Y.C. Agrawal, D.S. Jayas and B.K. Kumbhar. 2004. Mass transfer kinetics model of osmotic dehydration of carrots. *Transactions of the ASAE*, **47**(4):1179-1186.

Smith, E.A. and D.S. Jayas. 2004. Air traverse time in grain bins. *Applied Mathematical Modelling*, **28**:1047-1062.

Tabatabaee*, R., D.S. Jayas and N.D.G. White. 2004. Thin-layer drying and rewetting characteristics of buckwheat. *Canadian Biosystems Engineering*, **46**:3.19-3.24.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2004. Detection of internal wheat seed infestation by *Rhyzopertha dominica* using X-ray imaging. *Journal of Stored Products Research*, **40**:507-516.

Visen*, N.S., J. Paliwal*, D.S. Jayas and N.D.G. White. 2004. Image analysis of bulk grain samples using neural networks. *Canadian Biosystems Engineering*, **46**:7.11-7.15.

Paliwal*, J., D.S. Jayas, N.S. Visen* and N.D.G. White. 2004. Feasibility of a machine-vision based grain cleaner. *Applied Engineering in Agriculture*, **20**(2):245-248.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2004. Detection of infestations by *Cryptolestes ferrugineus* inside wheat kernels using a soft X-ray method. *Canadian Biosystems Engineering*, **46**:7.1-7.9.

Visen*, N.S., D.S. Jayas, J. Paliwal* and N.D.G. White. 2004. Comparison of two neural network architectures for classification of singulated cereal grains. *Canadian Biosystems Engineering*, **46**:3.7-3.14.

Parde*, S.R., D.S. Jayas and N.D.G. White. 2004. Movement of *Cryptolestes ferrugineus* (Coleoptera: Cucujidae) in grain columns containing pockets of high moisture content wheat and carbon dioxide gradients. *Journal of Stored Products Research*, **40**:299-316.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2004. Identification of wheat kernels damaged by the red flour beetle using X-ray images. *Biosystems Engineering*, **87**(3):267-274.

Paliwal, J., M.S. Borhan and D.S. Jayas. 2004. Classification of cereal grains using a flatbed scanner. *Canadian Biosystems Engineering*, **46**:3.1-3.5.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2003. X-ray image analysis to detect infestations caused by insects in grain. *Cereal Chemistry*, **80**(5):553-557.

Viswanathan*, R., R. Hulasare*, and D.S. Jayas. 2003. Drying characteristics of shredded onion (*Allium cepa*). *Journal of Food Science and Technology*, **40**(5):521-524.

Parde*, S., D.S. Jayas and N.D.G. White. 2003. Grain drying: a review. *Sciences des Aliments*, **23**(5-6):589-622.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2003. Soft X-ray image analysis to detect wheat kernels damaged by *Plodia interpunctella* (Lepidoptera: Pyralidae). *Sciences des Aliments*, **23**(5-6):623-631.

Hulasare*, R.B., N.D.G. White, D.S. Jayas and C.J. Demianyk. 2003. Intra- and interspecific interactions among *Tribolium castaneum* and *Cryptolestes ferrugineus* in stored wheat at different insect densities. *Phytoprotection*, **84**:19-26.

Viswanathan*, R., D.S. Jayas and R.B. Hulasare*. 2003. Sorption isotherms of tomato slices and onion shreds. *Biosystems Engineering*, **86**(4):465-472.

Paliwal*, J., N.S. Visen*, D.S. Jayas and N.D.G. White. 2003. Comparison of a neural network and a non-parametric classifier for grain kernel identification. *Biosystems Engineering*, **85**(4):405-413.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2003. Soft X-ray inspection of wheat kernels infested by *Sitophilus oryzae*. *Transactions of the ASAE*, **46**(3):739-745.

Parde*, S.R., A. Johal*, D.S. Jayas and N.D.G. White. 2003. Physical properties of buckwheat cultivars. *Canadian Biosystems Engineering*, **45**:3.19-3.22.

Paliwal*, J., N.S. Visen*, D.S. Jayas and N.D.G. White. 2003. Cereal grain and dockage identification using machine vision. *Biosystems Engineering*, **85**(1):51-57.

Jayas, D.S. and N.D.G. White. 2003. Storage and drying of grain in Canada: low cost approaches. *Food Control*, **14**(4):255-261.

Melvin*, S., C. Karunakaran*, D.S. Jayas and N.D.G. White. 2003. Design and development of a grain kernel singulation device. *Canadian Biosystems Engineering*, **45**:3.1-3.3.

Jian*, F., D.S. Jayas and N.D.G. White. 2003. Movement of adult rusty grain beetles, *Cryptolestes ferrugineus* (Coleoptera: Cucujidae), in wheat in response to 5EC/m temperature gradients at cool temperatures. *Journal of Stored Products Research*, **39**:87-101.

Minkevich*, J.M., C.J. Demianyk, N.D.G. White, D.S. Jayas and B. Timlick. 2002. A rapid method to detect *Cryptolestes ferrugineus* (Coleoptera: Cucujidae) larvae in stored grain. *Canadian Journal of Plant Science*, **82**:591-597.

Xu*, S., D.S. Jayas, N.D.G. White and W.E. Muir. 2002. Momentum-diffusive model for gas transfer in granular media. *Journal of Stored Products Research*, **38**:455-462.

Jian*, F., D.S. Jayas, N.D.G. White and W.E. Muir. 2002. Temperature and geotaxis preference by *Cryptolestes ferrugineus* (Coleoptera: Laemophloeidae) adults in response to 5°C/m temperature gradients at optimum and hot temperatures in stored wheat and their mortality at high temperature. *Environmental Entomology*, **31**(5): 816-826.

Jayas, D.S. and S. Jeyamkondan*. 2002. Modified atmosphere storage of grains, meats, fruits, and vegetables. *Biosystems Engineering*, **82**(3):235-251.

Visen*, N.S., J. Paliwal*, D.S. Jayas and N.D.G. White. 2002. Specialist neural networks for cereal grain classification. *Biosystems Engineering*, **82**(2):151-159.

Parde*, S.R., R.T. Kausal, D.S. Jayas and N.D.G. White. 2002. Mechanical damage to soybean seed during processing. *Journal of Stored Products Research*, **38**(4):385-394.

Tewari*, G., L.E. Jeremiah, D.S. Jayas and R.A. Holley. 2002. Improved use of oxygen scavengers to stabilize the colour of retail-ready meat cuts stored in modified atmospheres. *International Journal of Food Science and Technology*, **37**(2):199-207.

Tewari*, G., D.S. Jayas, L.E. Jeremiah and R.A. Holley. 2002. Absorption kinetics of oxygen scavangers. *International Journal of Food Science and Technology*, **37**(2):209-217.

Suresh*, S., N.D.G. White, D.S. Jayas and R.B. Hulasare*. 2001. Mortality resulting from interactions between the red flour beetle and the rusty grain beetle. *Proceedings of the Entomological Society of Manitoba*, **57**:11-18.

Jeyamkondan*, S., D.S. Jayas, R.A. Holley and L.E. Jeremiah. 2001. A nitrogen refrigerated, jacketed container for distribution of retail-ready meat. *Applied Engineering in Agriculture*, **17**(6):809-814.

Hulasare*, R.B., M.N.N. Habok*, D.S. Jayas and N.D.G. White. 2001. Near equilibrium moisture content values for hull-less oats. *Applied Engineering in Agriculture*, **17**(3):325-328.

Smith*, E.A. and D.S. Jayas. 2001. Modelling the movement of fumigant gas within grain beds. *Transactions of the ASAE*, **44**(3):661-667.

Mani*, S., P.W. Flinn, W.E. Muir, D.S. Jayas and N.D.G. White. 2001. Two models of grain temperatures and insect populations in stored wheat. *Transactions of the ASAE*, **44**(3):655-660.

Paliwal*, J., N.S. Visen* and D.S. Jayas. 2001. Evaluation of neural network architectures for cereal grain classification using morphological features. *Journal of Agricultural Engineering Research*, **79**(4): 361-370.

Visen*, N.S., N.S. Shashidhar*, J. Paliwal*, and D.S. Jayas. 2001. Identification and segmentation of occluding groups of grain kernels in a grain sample image. *Journal of Agricultural Engineering Research*, **79**(2):159-166.

White, N.D.G. and D.S. Jayas. 2001. Physical properties of canola and sunflower meal pellets. *Canadian Biosystems Engineering*, **43**:3.49-3.52.

Tewari*, G., D.S. Jayas, L.E. Jeremiah and R.A. Holley. 2001. Prevention of transient discoloration of beef. *Journal of Food Science*, **66**(3):506-510.

Jayas, D.S., D.A. Irvine*, G. Mazza and S. Jeyamkondan*. 2001. Evaluation of a computer-controlled ventilation system for a potato storage facility. *Canadian Biosystems Engineering*, **43**:5.5-5.12.

Jeyamkondan*, S., D.S. Jayas and R.A. Holley. 2001. Microbial growth modelling with artificial neural networks. *International Journal of Food Microbiology*, **64**:343-354.

Karunakaran, C., W.E. Muir, D.S. Jayas, N.D.G. White and D. Abramson. 2001. Safe storage time of high moisture wheat. *Journal of Stored Products Research*, **37**:303-312.

Tewari*, G. and D.S. Jayas. 2001. Influence of particle-particle interactions on fluid-to-particle heat transfer coefficients (h_{fp}) under tube flow conditions using stationary particle technique. *Journal of Food Science and Technology (Mysore)*, **38**(3): 243-247.

Wasney*, M.A., R.A. Holley and D.S. Jayas. 2001. Cresol red thallium acetate sucrose inulin (CTSI) agar for the selective recovery of *carnobacteria* spp. *International Journal of Food Microbiology*, **64**:167-174.

Smith, E.A., D.S. Jayas and A. de Ville. 2001. Modelling the flow of carbon dioxide through beds of cereal grains. *Transport in Porous Media*, **44**(1):123-144.

Mani, S., W.E. Muir, D.S. Jayas and N.D.G. White. 2001. Computer modelling of insect-induced hot spots in stored wheat. *Canadian Biosystems Engineering*, **43**:4.7-4.14.

Majumdar*, S. and D.S. Jayas. 2000. Classification of cereal grains using machine vision: I. Morphology models. *Transactions of the ASAE*, **43**(6):1669-1675.

Majumdar*, S. and D.S. Jayas. 2000. Classification of cereal grains using machine vision: II. Color models *Transactions of the ASAE*, **43**(6):1677-1680.

Majumdar*, S. and D.S. Jayas. 2000. Classification of cereal grains using machine vision: III. Texture models. *Transactions of the ASAE*, **43**(6):1681-1687.

Majumdar*, S. and D.S. Jayas. 2000. Classification of cereal grains using machine vision: IV. Combined morphology, color, and texture models. *Transactions of the ASAE*, **43**(6):1689-1694.

Jian*, F., D.S. Jayas and N.D.G. White. 2000. Toxic action of phosphine on the adults of the copra mite, *Tyrophagus putrescetiae* [Astigmata: Acaridae]. *Phytoprotection*, **81**(1):23-28.

Jayas, D.S., J. Paliwal*, N.S. Visen*. 2000. Multi-layer neural networks for image analysis of agricultural products. *Journal of Agricultural Engineering Research*, **77**(2):119-128.

Habok*, M.N.N., D.S. Jayas and R.A. Holley. 2000. Modification and testing of a liquid nitrogen refrigerated container for the distribution of fresh red meat. *Food Research International*, **33**:759-765.

Jeyamkondan*, S., D.S. Jayas and R.A. Holley. 2000. Review of centralized packaging systems for distribution of retail-ready meat. *Journal of Food Protection*, **63**(6):796-804.

Jayas, D.S., N.D.G. White and W.E. Muir. 2000. Modified atmospheres for control of pests in stored grain. *Journal of Applied Zoological Research*, **11**(1):1-6.

Chen, C. and D.S. Jayas. 2000. Relating equilibrium relative humidity and temperature to seed longevity. *Agricultural Engineering Journal*, **9**(3&4):129-138.

Tewari*, G., D.S. Jayas and R.A. Holley. 1999. High pressure processing of foods: an overview. *Sciences des Aliments*, **19**(6):619-661.

Sreenarayanan*, V.V., N.D.G. White, P.G. Fields, Z. Korunic and D.S. Jayas. 1999. Combinations of carbon dioxide and diatomaceous earth for control of *Tribolium castaneum* and *Cryptolestes ferrugineus*. *Journal of Applied Zoological Research*, **10**(2):81-88.

Paliwal*, J., N.S. Shashidhar* and D.S. Jayas. 1999. Grain kernel identification using kernel signature. *Transactions of the ASAE*, **42**(6):1921-1924.

Majumdar*, S., D.S. Jayas and S.J. Symons. 1999. Textural features for grain identification. *Agricultural Engineering Journal*, **8**(4):213-222.

White, N.D.G., R.B. Hulasare* and D.S. Jayas. 1999. Effects of storage conditions on quality loss of hull-less and hulled oats and barley. *Canadian Journal of Plant Science*, **79**:475-482.

Hulasare*, R., D.S. Jayas, N.D.G. White and W.E. Muir. 1999. Thin layer drying characteristics of hulless oats (*Avena sativa* L.) at near ambient temperatures. *Canadian Agricultural Engineering*, **41**(3):167-173.

Mann*, D.D., D.S. Jayas, W.E. Muir and N.D.G. White. 1999. Predicting the gas-tightness of grain storage structures. *Canadian Agricultural Engineering*, **41**(4):259-265.

Jeyamkondan*, S., D.S. Jayas and R.A. Holley. 1999. Pulsed electric field processing of foods - a review. *Journal of Food Protection*, **62**(9):1088-1096.

Majumdar*, S. and D.S. Jayas. 1999. Single-kernel mass determination for grain inspection using machine vision. *Applied Engineering in Agriculture*, **15**(4):357-362.

Lukasiewicz*, M., D.S. Jayas, W.E. Muir and N.D.G. White. 1999. Gas leakage through samples of wall seams of bolted-metal bins. *Canadian Agricultural Engineering*, **41**(1):65-71.

Tewari*, G. and D.S. Jayas. 1999. Aseptic processing and packaging: promising packaging technique for food processing industries. *Indian Food Industry*, **18**(1): 23-33.

Jayas, D.S., C.E. Murray* and N.R. Bulley. 1999. An automated seed presentation device for use in machine vision identification of grain. *Canadian Agricultural Engineering*, **41**(2):113-118.

Abramson, D., R. Hulasare*, N.D.G. White, D.S. Jayas and R.R. Marquardt. 1999. Mycotoxin formation in hulless barley during granary storage at 15 and 19% moisture content. *Journal of Stored Products Research*, **35**:297-305.

Mann*, D.D., D.S. Jayas, N.D.G. White and W.E. Muir. 1999. Mortality of adult *Cryptolestes ferrugineus* (Stephens) exposed to changing CO_2 concentrations. *Journal of Stored Products Research*, **35**(4):385-395.

Luo*, X.Y., D.S. Jayas and S.J. Symons. 1999. Comparison of statistical and neural network methods for classifying cereal grains using machine vision. *Transactions of the ASAE*, **42**(2):413-419.

Yu*, L., G. Mazza and D.S. Jayas. 1999. Moisture sorption characteristics of freeze-dried, osmo-freeze-dried, and osmo-air-dried cherries and blueberries. *Transactions of the ASAE*, **42**(1):141-147.

Mann*, D.D., D.S. Jayas, W.E. Muir and N.D.G. White. 1999. Efficient carbon dioxide fumigation of wheat in welded-steel hopper bins. *Applied Engineering in Agriculture*, **15**(1):57-63.

Paliwal*, J., D.S. Jayas, N.D.G. White, and W.E. Muir. 1999. Effect of pneumatic conveying of wheat on mortality of insects. *Applied Engineering in Agriculture*, **15**(1):65-68.

Tewari*, G., D.S. Jayas and R.A. Holley. 1999. Centralized packaging of retail meat cuts: a review. *Journal of Food Protection*, **62**(4):418-425.

Weres*, J., D.S. Jayas and A. Ryniecki*. 1999. An inverse heat transfer method for the estimation of convective heat transfer coefficient. *Agricultural Engineering Journal*, **8**(1):45-55.

Majumdar*, S. and D.S. Jayas. 1999. Classification of bulk samples of cereal grains using machine vision. *Journal of Agricultural Engineering Research*, **73**:35-47.

Luo*, X.Y., D.S. Jayas and S.J. Symons. 1999. Identification of damaged kernels in wheat using a color machine vision system. *Journal of Cereal Science*, **30**(1):49-59.

Nair*, M. and D.S. Jayas. 1998. Dockage identification in wheat using machine vision. *Canadian Agricultural Engineering*, **40**(4):293-298.

Chen, C. and D.S. Jayas. 1998. Dynamic equilibrium moisture content for grain drying. *Canadian Agricultural Engineering*, **40**(4):299-303.

Schroth, E., W.E. Muir, D.S. Jayas, N.D.G. White and D. Abramson. 1998. Storage limit of wheat at 17% moisture content. *Canadian Agricultural Engineering*, **40**(3):201-205.

Chen, C. and D.S. Jayas. 1998. Evaluation of the GAB equation for the isotherms of agricultural products. *Transactions of the ASAE*, **41**(6):1755-1760.

Cofie-Agblor*, R., W.E. Muir, D.S. Jayas and N.D.G. White. 1998. Carbon dioxide sorption by grains and canola at two CO_2 concentrations. *Journal of Stored Products Research*, **34**:159-170.

Tewari*, G., M. Kulshreshtha, D.S. Jayas, V.M. Balasubramaniam and H.S. Bisht. 1998. Computer simulation of turmeric grinding. *Agricultural Engineering Journal*, **7**(1):13-22.

Bailey*, C.G., D.S. Jayas, R.A. Holley, L.E. Jeremiah and C.O. Gill. 1997 (1998). Design, fabrication, and testing of a returnable, insulated, nitrogen-refrigerated shipping container for distribution of fresh red meat under controlled CO_2 atmosphere. *Food Research International*, **30**(10):743-753.

Epp*, D.A., D.S. Jayas, W.E. Muir, N.D.G. White and D. St. George. 1997. Near-ambient drying of wheat using variable airflow - a simulation study. *Canadian Agricultural Engineering*, **39**(4):297-302.

Cofie-Agblor, R., W.E. Muir, N.D.G. White and D.S. Jayas. 1997. Microbial heat production in stored wheat. *Canadian Agricultural Engineering*, **39**(4):303-307.

Luo*, X., D.S. Jayas, T.G. Crowe and N.R. Bulley. 1997. Evaluation of light sources for machine vision. *Canadian Agricultural Engineering*, **39**(4):309-315.

White, N.D.G., D.S. Jayas and C.J. Demianyk. 1997. Movement of grain to control stored-product insects and mites. *Phytoprotection*, **78**(2):75-84.

Demianyk, C.J., N.D.G. White and D.S. Jayas. 1997. Rapid detection of rusty grain beetles (Coleoptera: Cucujidae) from wheat samples passing through a mechanical dockage tester. *Canadian Journal of Plant Science*, **77**:717-719.

Crowe*, T.G., X. Luo*, D.S. Jayas and N.R. Bulley. 1997. Color line-scan imaging of cereal grain kernels. *Applied Engineering in Agriculture*, **13**(5):689-694.

Mann*, D.D., D.S. Jayas, W.E. Muir and N.D.G. White. 1997. Sealing of welded-steel hopper bins for fumigation of stored grain with carbon dioxide. *Canadian Agricultural Engineering*, **39**(2):91-97.

Shashidhar*, N.S., D.S. Jayas, T.G. Crowe* and N.R. Bulley. 1997. Processing of digital images of touching kernels by ellipse fitting. *Canadian Agricultural Engineering*, **39**(2):139-142.

Lepper*, S., N.D.G. White and D.S. Jayas. 1997. Bulk characteristics of a hulless and two hulled cultivars of oats. *Canadian Agricultural Engineering*, **39**(2):85-90.

Sinicio, R., W.E. Muir and D.S. Jayas. 1997. Sensitivity analysis of a mathematical model to simulate aeration of wheat stored in Brazil. *Postharvest Biology and Technology*, **11**:107-122.

White, N.D.G., D.S. Jayas and C.J. Demianyk. 1997. Degradation and biological impact of chlorpyrifos-methyl on stored wheat and pirimiphos-methyl on stored maize in western Canada. *Journal of Stored Products Research*, **33**(2):125-135.

Mann*, D.D., D.S. Jayas, N.D.G. White, W.E. Muir and M.S. Evans. 1997. A grain storage information system for Canadian farmers and grain storage managers. *Canadian Agricultural Engineering*, **39**(1):49-56.

Tewari*, G. and D.S. Jayas. 1997. Heat transfer during thermal processing of liquid foods with or without particulate: a review. *Agriculture Engineering Journal*, **6**(1):1-27.

White, N.D.G. and D.S. Jayas. 1996. Deterioration during storage in wild rice, *Zizania palustris*, and polished basmati rice, *Oryzae sativa*, and potential for insect infestation. *Seed Science and Technology*, **24**:261-271.

Alagusundaram*, K., D.S. Jayas, W.E. Muir and N.D.G. White. 1996. Convective-diffusive transport of carbon dioxide through stored-grain bulks. *Transactions of the ASAE*, **39**(4):1505-1510.

Majumdar*, S., D.S. Jayas, J.L. Hehn* and N.R. Bulley. 1996. Classification of various grains using optical properties. *Canadian Agricultural Engineering*, **38**(2):139-144.

Bundus*, C.L., D.S. Jayas, W.E. Muir, N.D.G. White and D. Ruth. 1996. Average convective-pore velocity of carbon dioxide gas through grain bulks. *Canadian Agricultural Engineering*, **38**(2):91-98.

Alagusundaram*, K., D.S. Jayas, W.E. Muir, N.D.G. White and R.N. Sinha. 1996. Distribution of introduced carbon dioxide through stored wheat bulks -- a pilot scale study. *Canadian Agricultural Engineering,* **38**(2):83-89.

Alagusundaram*, K., D.S. Jayas, W.E. Muir, N.D.G. White and R.N. Sinha. 1996. Finite element model of three-dimensional movement of carbon dioxide in grain bins. *Canadian Agricultural Engineering*, **38**(2):75-82.

Alagusundaram*, K., D.S. Jayas, W.E. Muir, N.D.G. White and R.N. Sinha. 1996. Apparent flow coefficient of carbon dioxide through wheat bulks. *Canadian Agricultural Engineering*, **38**(2):69-73.

Rameshbabu*, M., D.S. Jayas, W.E. Muir, N.D.G. White and J.T. Mills. 1996. Bulk and handling properties of hulless barley. *Canadian Agricultural Engineering*, **38**(1):31-35.

Cofie-Agblor, R., W.E. Muir, R. Sinicio, S. Cenkowski and D.S. Jayas. 1995. Characteristics of carbon dioxide sorption by stored wheat. *Journal of Stored Products Research*, **31**(4):317-324.

Ryniecki, A., A. Molinska and D.S. Jayas. 1995. Stochastic modelling of grain moisture content in near-ambient drying. *Drying Technology*, **13**(8&9):1933-1948.

Shatadal*, P., D.S. Jayas, J.L. Hehn and N.R. Bulley. 1995. Seed classification using machine vision. *Canadian Agricultural Engineering*, **37**(3):163-167.

Dougan, K.D., W.E. Muir and D.S. Jayas. 1995. Feasibility of in-progress drying guidelines for wheat ventilated with near-ambient air. *Canadian Agricultural Engineering*, **37**(3):183-187.

Alagusundaram*, K., D.S. Jayas, N.D.G. White, W.E. Muir and R.N. Sinha. 1995. Controlling *Cryptolestes ferrugineus* (Stephens) adults in wheat stored in bolted-metal bins using elevated carbon dioxide. *Canadian Agricultural Engineering*, **37**(3):217-223.

Sreenarayanan, V.V., M. Rubikala and D.S. Jayas. 1995. Lye-peeling of cassava (*Manihot esculenta* Crantz). *Agriculture Engineering Journal,* **4**(3):163-171.

White, N.D.G., D.S. Jayas and W.E. Muir. 1995. Toxicity of carbon dioxide at biologically producible levels to some stored-product beetles. *Environmental Entomology*, **24**(3):640-647.

Alagusundaram*, K., D.S. Jayas, W.E. Muir, N.D.G. White and R.N. Sinha. 1995. Distribution of introduced carbon dioxide through wheat bulks contained in bolted-metal bins. *Transactions of the ASAE,* **38**(3):895-901.

Shatadal*, P., D.S. Jayas and N.R. Bulley. 1995. Digital image analysis for software separation and classification of touching grains: I. Disconnect algorithm. *Transactions of the ASAE*, **38**(2):635-643.

Shatadal*, P., D.S. Jayas and N.R. Bulley. 1995. Digital image analysis for software separation and classification of touching grains: II. Classification. *Transactions of the ASAE*, **38**(2):645-649.

Sinicio, R., W.E. Muir, D.S. Jayas and S. Cenkowski. 1995. Thin-layer drying and wetting of wheat. *Postharvest Biology and Technology,* **5**:261-275.

White, N.D.G., D.S. Jayas and R.N. Sinha. 1994. Impact of pirimiphos-methyl and cold temperatures on arthropod populations in stored wheat. *Phytoprotection,* **75**:79-90.

Alagusundaram*, K., D.S. Jayas, O.H. Friesen and N.D.G. White. 1994. Airflow patterns through wheat, barley, and canola in bins with partially perforated floors -- an experimental investigation. *Applied Engineering in Agriculture,* **10**(6):791-796.

Jayas, D.S., K. Alagusundaram*, G. Shunmugam*, W.E. Muir and N.D.G. White. 1994. Simulated temperatures of stored grain bulks. *Canadian Agricultural Engineering*, **36**(4):239-245.

Majumdar, S., E.V. Thomas and D.S. Jayas. 1994. Optimization of parameters in the design of an extended octagonal-ring transducer. *Agricultural Engineering Journal,* **3**(4):152-165.

Weres*, J. and D.S. Jayas. 1994. Effects of corn kernel properties on predictions of moisture transport in the thin-layer drying of corn. *Transactions of the ASAE*, **37**(5):1695-1705.

Weres*, J. and D.S. Jayas. 1994. Thin-layer drying of corn: experimental validation of a new numerical structural model. *Canadian Agricultural Engineering*, **36**(2):85-91.

Mazza, G., D.S. Jayas, B.D. Oomah and J.T. Mills. 1994. Comparison of five three-parameter equations for the description of moisture sorption data of mustard seeds. *International Journal of Food Science and Technology*, **29**:71-81.

Jayas, D.S. and D. Mann*. 1994. Presentation of airflow resistance data of seed bulks. *Applied Engineering in Agriculture,* **10**(1):79-83.

Shunmugam*, G., D.S. Jayas and N.D.G. White. 1993. Effects of controlled atmospheres on all life stages of the rusty grain beetle *Cryptolestes ferrugineus* (Stephens). *Journal of Applied Zoological Research,* **4**(2):114-117.

White, N.D.G., R.N. Sinha, D.S. Jayas and W.E. Muir. 1993. Movement of *Cryptolestes ferrugineus* (Coleoptera: Cucujidae) under carbon dioxide gradients in stored wheat. *Journal of Economic Entomology*, **86**:1846-1851.

Bergen*, G.A., D.S. Jayas and N.D.G. White. 1993. Physical damage to peas and lentils due to free fall. *Canadian Agricultural Engineering*, **35**:151-155.

Cenkowski, S., D.S. Jayas and S. Pabis. 1993. Deep-bed drying - a review of particular theories. *Drying Technology,* **11**(7):1553-1581.

Cenkowski, S., D.S. Jayas and J.K. Daun. 1993. Potential of in-field and low temperature drying for reducing chlorophyll contents in canola (*Brassica napus* L). *Journal of the Science of Food and Agriculture,* **63**:377-383.

Irvine*, D.A., D.S. Jayas and G. Mazza. 1993. Resistance to airflow through clean and soiled potatoes. *Transactions of the ASAE,* **36**(5):1405-1410.

Jayas, D.S., N.D.G. White, W.E. Muir and R.N. Sinha. 1993. Controlled atmosphere storage of cereals and oilseeds. *Journal of Applied Zoological Research,* **4**(1):1-12.

Jayas, D.S. and G. Mazza. 1993. Comparison of five three-parameter equations for the description of adsorption data of oats. *Transactions of the ASAE*, **36**(1):119-125.

Ryniecki*, A., W.E. Muir and D.S. Jayas. 1993. Optimization of control systems for near-ambient drying of wheat under maritime and continental climates. *Postharvest Biology and Technology*, **2**:217-230.

Ryniecki*, A., D.S. Jayas and W.E. Muir. 1993. A generalized control-strategy for near-ambient drying of wheat under Canadian-prairie climate. *Transactions of the ASAE*, **36**(4):1175-1183.

Ryniecki*., A. and D.S. Jayas. 1993. Automatic determination of model parameters for computer control of canned food sterilization. *Journal of Food Engineering,* **19**:75-94.

White, N.D.G. and D.S. Jayas. 1993. Microfloral infection and quality deterioration of sunflower seeds as affected by temperature and moisture content during storage and the suitability of the seeds for insect or mite infestation. *Canadian Journal of Plant Science,* **73**:303-313.

White, N.D.G. and D.S. Jayas. 1993. Effectiveness of carbon dioxide in compressed gas or solid formulation for the control of insects and mites in stored wheat and barley. *Phytoprotection*, **74**:101-111.

Alagusundaram*, K., D.S. Jayas, F. Chotard* and N.D.G. White. 1992. Airflow pressure drop relationships of some specialty seeds. *Sciences des Aliments,* **12**:101-116.

Cenkowski, S., D.S. Jayas and D. Hao. 1992. Latent heat of vaporization for selected foods and crops. *Canadian Agricultural Engineering*, **34**:281-286.

Irvine*, D.A., D.S. Jayas, N.D.G. White and M.G. Britton. 1992. Physical properties of flaxseed, lentils, and fababeans. *Canadian Agricultural Engineering*, **34**:75-81.

Irvine*, D.A., D.S. Jayas, M.G. Britton and N.D.G. White. 1992. Dynamic friction characteristics of bulk seeds against flat vertical surfaces. *Transactions of the ASAE*, **35**(2):665-669.

Jaros, M., S. Cenkowski, D.S. Jayas and S. Pabis. 1992. A method of determination of the diffusion coefficient based on kernel moisture content and its temperature. *Drying Technology,* **10**(1):213-222.

Jayas, D.S., N.D.G. White, M.G. Britton and J.T. Mills. 1992. Effect of oil used for dust control on engineering properties of stored wheat. *Transactions of the ASAE*, **35**(2):659-664.

Ryniecki*, A. and D.S. Jayas. 1992. Stochastic modelling of grain temperature in near-ambient drying. *Drying Technology,* **10**(1):123-137.

Sinicio, R., D.S. Jayas, W.E. Muir and D.B. Sanderson. 1992. Finite-element prediction of non-uniform airflow in fixed beds of wheat. *Postharvest Biology and Technology,* **2**:51-59.

Smith, E.A., D.S. Jayas, W.E. Muir, K. Alagusundaram* and V.H. Kalbande. 1992. Simulation of grain drying in bins with partially perforated floors Part I: Isotraverse lines. *Transactions of the ASAE*, **35**(3):909-915.

Smith, E.A., D.S. Jayas, W.E. Muir, K. Alagusundaram* and V.H. Kalbande. 1992. Simulation of grain drying in bins with partially perforated floors Part II: Calculation of moisture content. *Transactions of the ASAE*, **35**(3):917-922.

White, N.D.G., D.S. Jayas, J.T. Mills and B.L. Dronzek. 1992. Effects of canola oil or white mineral oil at dust suppressant levels on the storage characteristics of wheat. *Cereal Chemistry,* **69**(2):182-187.

Alagusundaram*, K., D.S. Jayas, W.E. Muir and N.D.G. White. 1991. Thermal conductivity of bulk barley, lentils, and peas. *Transactions of the ASAE*, **34**(4):1784-1788.

Jayas, D.S., G.E. Laliberte and K. Alagusundaram*. 1991. A finite element program for teaching transient axisymmetric field problems. *International Journal of Applied Engineering Education*, **7**(4):289-293.

Jayas, D.S., S. Sokhansanj and F.W. Sosulski. 1991. Resistance of bulk canola seed to airflow in the presence of foreign material. *Canadian Agricultural Engineering*, **33**(1):47-54.

Jayas, D.S., S. Cenkowski, S. Pabis and W.E. Muir. 1991. Review of thin-layer drying and wetting equations. *Drying Technology,* **9**(3):551-588.

Jayas, D.S., K. Alagusundaram* and D.A. Irvine*. 1991. Resistance to airflow through bulk flax seed as affected by the moisture content, direction of airflow and foreign material. *Canadian Agricultural Engineering*, **33**:279-285.

Jayas, D.S. and W.E. Muir. 1991. Airflow-pressure drop data for modelling fluid flow in anisotropic bulks. *Transactions of the ASAE*, **34**(1):251-254.

Jayas, D.S. and G. Mazza. 1991. Equilibrium moisture characteristics of safflower seeds. *Transactions of the ASAE*, **34**(5):2099-2103.

Mazza, G. and D.S. Jayas. 1991. Equilibrium moisture characteristics of sunflower seeds, hulls, and kernels. *Transactions of the ASAE*, **34**(2):534-538.

Mazza, G. and D.S. Jayas. 1991. Evaluation of four three-parameter equations for the description of the moisture sorption data of *Lathyrus* pea seeds. *Lebensmittel-Wissenschaft und Technologie,* **24**:562-565.

Rameshbabu*, M., D.S. Jayas and N.D.G. White. 1991. Mortality of *Cryptolestes ferrugineus* (Stephens) adults and eggs in elevated carbon dioxide and depleted oxygen atmospheres. *Journal of Stored Products Research*, **27**(3):163-170.

Sinicio, R., W.E. Muir, D.B. Sanderson and D.S. Jayas. 1991. Simulated fan control systems for aerated corn and wheat in Sorocaba, Brazil. *Sciences des Aliments,* **11**:141-153.

White, N.D.G. and D.S. Jayas. 1991. Factors affecting the deterioration of stored flaxseed including the potential of insect infestation. *Canadian Journal of Plant Science*, **71**:327-335.

White, N.D.G. and D.S. Jayas. 1991. Control of insects and mites with carbon dioxide in wheat stored at cool temperatures and in non-airtight bins. *Journal of Economic Entomology*, **84**(6):1933-1942.

Alagusundaram*, K., D.S. Jayas, N.D.G. White and W.E. Muir. 1990. Finite difference model of three-dimensional heat transfer in grain bins. *Canadian Agricultural Engineering*, **32**:315-321.

Alagusundaram*, K., D.S. Jayas, N.D.G. White and W.E. Muir. 1990. Three dimensional, finite element, heat transfer model of temperature distribution in grain storage bins. *Transactions of the ASAE*, **33**(2):577-584.

Cenkowski, S., W.E. Muir and D.S. Jayas. 1990. Simulation of canola and barley drying in a deep bed. *Journal of Food Process Engineering,* **12**:171-190.

Jayas, D.S., S. Sokhansanj, E.B. Moysey and E.M. Barber. 1990. Predicting pressure patterns in canola (rapeseed) bins. *Canadian Agricultural Engineering*, **32**:249-254.

Mazza, G., D.S. Jayas and N.D.G. White. 1990. Moisture sorption isotherms of flax seed. *Transactions of the ASAE,* **33**(4):1313-1318.

Rameshbabu*, M., D.S. Jayas and N.D.G. White. 1990. A controlled-atmosphere unit for laboratory studies on control of stored-product pests. *Journal of Applied Zoological Research,* **1**(2):1-12.

Shatadal*, P., D.S. Jayas and N.D.G. White. 1990. Thin-layer rewetting characteristics of canola. *Transactions of the ASAE*, **33**(3):871-876.

Sokhansanj, S., A.A. Falacinski, F.W. Sosulski, D.S. Jayas and J. Tang. 1990. Resistance of bulk lentils to airflow. *Transactions of the ASAE*, **33**(4):1281-1285.

White, N.D.G., D.S. Jayas and R.N. Sinha. 1990. Carbon dioxide as a control agent for the rusty grain beetle (Coleoptera: Cucujidae) in stored wheat. *Journal of Economic Entomology*, **83**(1):277-288.

Ghadge, A.D., M.G. Britton and D.S. Jayas. 1989. Moisture content determination for potatoes. *Transactions of the ASAE*, **32**(5):1744-1746.

Jayas, D.S. and S. Sokhansanj. 1989. Design data on resistance of airflow through canola (rapeseed). *Transactions of the ASAE*, **32**(1):295-296.

Jayas, D.S. and S. Sokhansanj. 1989. Thin-layer drying of barley at low temperatures. *Canadian Agricultural Engineering*, **31**(1):21-23.

Jayas, D.S., S. Sokhansanj and N.D.G. White. 1989. Bulk density and porosity of two canola species. *Transactions of the ASAE*, **32**(1):291-294.

White, N.D.G. and D.S. Jayas. 1989. Safe storage conditions and infestation potential of canola meal by fungi and insects. *Journal of Stored Products Research*, **25**:105-114.

Jayas, D.S., D.A. Kukelko* and N.D.G. White. 1988. Equilibrium moisture-equilibrium relative humidity relationship for canola meal. *Transactions of the ASAE*, **31**(5):1585-1588,1593.

Jayas, D.S., S. Sokhansanj and D. Bergh. 1988. Effect of maturity and harvest method on drying rate of wheat. *Drying Technology*, **6**(2):213-223.

Kukelko*, D.A., D.S. Jayas, N.D.G. White and M.G. Britton. 1988. Physical properties of canola (rapeseed) meal. *Canadian Agricultural Engineering*, **30**:61-64.

White, N.D.G., D.S. Jayas and R.N. Sinha. 1988. Interaction of carbon dioxide and oxygen levels, and temperature on adult survival and multiplication of *Cryptolestes ferrugineus* in stored wheat. *Phytoprotection*, **69**:31-39.

Jayas, D.S., S. Sokhansanj, E.B. Moysey and E.M. Barber. 1987. Airflow resistance of canola (rapeseed). *Transactions of the ASAE*, **30**(5):1484-1488.

Jayas, D.S., S. Sokhansanj, E.B. Moysey and E.M. Barber. 1987. Distribution of foreign material in canola bins filled using a spreader or spout. *Canadian Agricultural Engineering*, **29**(2):183-188.

Jayas, D.S., S. Sokhansanj, E.B. Moysey and E.M. Barber. 1987. The effect of airflow direction on the resistance of canola (rapeseed) to airflow. *Canadian Agricultural Engineering*, **29**(2):189-192.

Miketinac, M.J., A.W. Kelm and D.S. Jayas. 1987. Airflow patterns for various approximations to velocity-pressure gradient data. *Journal of Applied Mathematics and Computing*, **22**(1):45-63.

Miketinac, M.J., S. Sokhansanj and D.S. Jayas. 1986. Graphical analysis of airflow distribution in grain bins using finite element method. *Canadian Agricultural Engineering*, **28**(1):23-30.

Sokhansanj, S., W. Zhijie, D.S. Jayas and T. Kameoka. 1986. Equilibrium relative humidity-moisture content of rapeseed (canola) at temperatures from 5EC to 25EC. *Transactions of the ASAE*, **29**(3):837-839.

Singh (Jayas), D. and E.B. Moysey. 1985. Grain bin wall pressures: theoretical and experimental. *Canadian Agricultural Engineering*, **27**(1):43-48.

Singh (Jayas), D., W.E. Muir and R.N. Sinha. 1985. Transient method to determine the diffusion coefficient of gases. *Canadian Agricultural Engineering*, **27**(2):69-72.

Singh (Jayas), D., W.E. Muir and R.N. Sinha. 1984. Apparent coefficient of diffusion of carbon dioxide through samples of cereals and rapeseed. *Journal of Stored Products Research*, **20**(3):169-175.

Sokhansanj, S., D. Singh (Jayas) and J.D. Wassermann. 1984. Drying characteristics of wheat, barley and canola subjected to repetitive wetting and drying cycles. *Transactions of the ASAE*, **27**(3):903-906, 914.

Singh (Jayas), D., W.E. Muir and R.N. Sinha. 1983. Finite element modelling of carbon dioxide diffusion in stored wheat. *Canadian Agricultural Engineering*, **25**(1):149-152.

Patents

Reimer, A, Y. Gui, C. Hu, F. Jian, P.G. Fields and D.S. Jayas. 2018. US Provisional Application No. 62/725,635 “Compact microwave device for monitoring grain conditions”. Filed on August 31.

Jian*, F., D.S. Jayas and P.G. Fields. 2014. Method to rapidly detect insects in granular materials. Provisional US Patent Oct 2014 USSN 62/055,752.

Neethirajan*, S., M.S. Freund and D.S. Jayas. 2013. Poly (aniline boronic acid) polymers and methods of use. Patent No. US 8,454,819 B2.

Refereed Conference Proceedings

Jian*, F. and D.S. Jayas. 2016. Engineering considerations for creating uniform distribution of applied gas during controlled atmospheres and fumigation. Pp. 60-69. In: Navarro, S., Jayas, D.S., Alagusundaram, K., (eds.), Proceedings of 10th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2016), CAF Permanent Secretariat, Winnipeg, Canada.

Jian*, F., V. Chelladurai*, P.G. Fields, D.S. Jayas and N.D.G. White. 2016. Mortality of stored-grain insects in stored wheat (*Triticum species*) fumigated with ozone. Pp. 75-79. In: Navarro, S., Jayas, D.S., Alagusundaram, K., (eds.), Proceedings of 10th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2016), CAF Permanent Secretariat, Winnipeg, Canada.

Chelladurai*, V., F. Jian*, D.S. Jayas and N.D.G. White. 2016. Permeability of silo bag material for carbon dioxide and oxygen. Pp. 131-135. In: Navarro, S., Jayas, D.S., Alagusundaram, K., (eds.), Proceedings of 10th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2016), CAF Permanent Secretariat, Winnipeg, Canada.

Jian*, F., V. Chelladurai*, D.S. Jayas. 2012. Insector® system to monitor insect activity and density during grain storage and fumigation. Pp. 396-402. In: Navarro, S., Banks, H.J., Jayas, D.S., Bell, C.H., Noyes, R.T., Ferizli, A.G., Emekci, M., Isikber, A.A., Alagusundaram, K. (eds.), Proceedings of the 9th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2012), Arber Professional Congress Services, Antalya, Turkey.

Jayas, D.S. and Jian*, F. 2012. Integrated commodity management. Pp. 705-714. In: Navarro, S., Banks, H.J., Jayas, D.S., Bell, C.H., Noyes, R.T., Ferizli, A.G., Emekci, M., Isikber, A.A., Alagusundaram, K. (eds.), Proceedings of the 9th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2012), Arber Professional Congress Services, Antalya, Turkey.

Emadi, T.A., C. Shafai, D.J. Thomson, M.S. Freund, N.D.G. White, and D.S. Jayas. 2011. Polymer-based micromachined chemicapacitor gas sensor on a temperature controlled platform. Pp. 1024-1027 in the Proceedings of the IEEE Sensors Conference (DOI: 10.1109/ICSENS.2011.6127017), Limerick, Ireland, October 28-31.

Jain*, F., D.S. Jayas, P.G. Fields and A.Y. Abdelghany. 2010. Development and comparison of two models to predict survival rates of young larvae of *Stegobium paniceum* (L.) (Coleoptera: Anobiidae) under heat treated temperatures. Pp. 686-695. In: Carvalho, O.M, Fields, P.G., Adler, C.S., Arthur, F.H., Athanassiou, C.G., Campbell, J.F., Fleurat-Lessard, F., Flinn, P.W., Hodges, R.J., Isikber, A.A. Navarro, S., Noyes, R.T., Riudavets, J., Sinha, K.K., Thorpe, G.R., Timlick, B.H., Trematerra, P., White, N.D.G. (eds.), Proceedings of the 10th International Working Conference on Stored Product Protection, 27 June-2 July, Estoril, Portugal, Julius-Kuhn-Archiv, Berlin, Germany.

Singh*, C.B., D.S. Jayas, J. Paliwal and N.D.G. White. 2010. Near-infrared hyperspectral imaging for quality analysis of agricultural and food products. Proceedings of the SPIE conference, Paper No. 7676-2.

Ghosh*, P.K., D.S. Jayas, M.L.H. Gruwel and N.D.G. White. 2007. Influence of grain structural components on the drying of wheat: a magnetic resonance imaging study. Pp. 125-133. In: Magnetic Resonance in Food Science - from Molecules to Man, Farhat, I.A., P.S. Belton and G.A. Webb (eds.), RSC (Royal Society of Chemistry) Publishing, Cambridge, UK.

Chacon, M., A. Manickavasagan*, D. Flores-Tapia, G. Thomas and D.S. Jayas. 2007. Segmentation of wheat grains in thermal images based on pulse coupled neural networks. Paper No. 2735 (MP-P2.10). IEEE International Conference on Image Processing (ICIP 2007), San Antonio, TX.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2002. X-ray image analysis to detect infestation due to *Cryptolestes ferrrugineus* in stored wheat. Pp. 902-907. In: Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering vol. 2.

Visen*, N.S., J. Paliwal*, and D.S. Jayas. 2002. Algorithm development for grain kernel identification. Pp. 963-967. In: Proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering vol. 2.

Ryniecki*, A., D.S. Jayas and W.E. Muir. 1992. Control-strategy for reducing overdrying in near-ambient drying of wheat. Pp. 63-64. In: Extended abstracts: International Symposium on Stored Grain Ecosystems, Jayas, D.S., N.D.G. White, W.E. Muir and R.N. Sinha (eds.), Department of Agricultural Engineering, University of Manitoba, Winnipeg.

Shatadal*, P., D.S. Jayas, J.L. Hehn* and N.R. Bulley. 1992. Potential applications of machine vision in grain storage and management. Pp. 45-46. In: Extended abstracts: International Symposium on Stored Grain Ecosystems, Jayas, D.S., N.D.G. White, W.E. Muir and R.N. Sinha (eds.), Department of Agricultural Engineering, University of Manitoba, Winnipeg.

Kukelko*, D.A., D.S. Jayas, N.D.G. White and M.G. Britton. 1987. Physical properties of canola meal. Pp. A246-A247. In: Proceedings of the Eleventh Canadian Congress of Applied Mechanics Vol. I.

Kameoka, T., D.S. Jayas, H. Morishima and S. Sokhansanj. 1986. Equilibrium moisture content of rice. Pp. 201-210. In: Food Engineering and Process Applications Vol. I Transport Phenomena, M. Le Maguer and P. Jelen (eds.), Elsevier Applied Science Publishers, New York, NY.

Invited Presentations

Jayas, D.S. 2019. Equity, diversity and inclusion at the University of Manitoba. First Annual Intersections of Gender Conference, University of Alberta, Edmonton, AB.

Jayas, D.S. 2019. Managing bulk-stored grains using smart sensors and IoT. A Keynote Presentation during National Seminar on Advances in Bulk Grain Storage & Smart Sensor and IoT Applications in Warehouses. Indian Institute of Food Processing Technology, Thanjavur, India, July 26.

Jayas, D.S. 2019. Why should Biosystems engineers develop mathematical models as management tools? A Keynote Presentation. Canadian Society for Bioengineering, Vancouver, BC, July 15-17.

Jayas, D.S. 2019. Mathematical models as stored-grain ecosystems management tools. Paper No. 1901921. American Society of Agricultural and Biological Engineers, Boston, MA, July 7-10.

Jayas, D.S. and C.B. Singh. 2019. Smart technologies for agri-food industry. XIV Agricultural Science Congress, Theme: Innovations for Agricultural Transformation. National Academy of Agricultural Sciences, New Delhi, India, February 20-23.

Jayas, D.S. 2018. Bioimaging for food quality monitoring. International Conference on Recent Advances in Food Processing Technology, Theme: Doubling Farmers' Income through Food Processing (iCRAFPT'18). Indian Institute of Food Processing Technology, Thanjavur, India, August 17-19.

Jayas, D.S. 2018. Insect detection and identification in stored grain: past, present and future. Fifth Meeting of the Indian Grain Storage Working Group (IGSWG) on "Bulk Storage, Fumigation and Drying of Grains at Farmers Level". Indian Council of Agricultural research, New Delhi, India. May 21.

Jayas, D.S. 2017. Current trends and research needs in management of cereal grains, oilseeds and pulses. Paper No. 1701695. Annual Meeting of the American Society of Agricultural and Biological Engineers, Spokane, WA, July 16-19.

Jayas, D.S. 2017. Thoughts for successful implementation of a bulk storage and handling system for grains. Fourth meeting of the Indian Grain Storage Working Group (IGSWG). Indian Council of Agricultural research, New Delhi, India. June 11-12.

Jayas, D.S. 2017. What we know and what more we need to know about stored-grain ecosystems? International Seminar of Techniques Basic on Grain Storage and Transportation (ISTBGST), Jilin University, Changchun, China, May 20.

Jayas, D.S. 2016. 3Ps critical to food security and implications of climate change. Presented at the World Food Day Commemoration, World Vision Canada, Mississauga, ON. October 12.

Chelladurai*, V. and D.S. Jayas. 2016. Feasibility of storing canola in silo bags (harvest bags). Third meeting of the Indian Grain Storage Working Group (IGSWG). Indian Council of Agricultural research, New Delhi, India. April 22-23.

Jayas, D.S. 2016. Preserving grains for high quality processed products. Presented at the 15th International Cereal and Bread Congress, Istanbul, Turkey. April 18-21.

Jayas, D.S. 2015. Preserving cereals, oilseeds and pulses (together referred to as grains. Second meeting of the Indian Grain Storage Working Group (IGSWG). Indian Council of Agricultural research, New Delhi, India. November 21.

Jayas, D.S. 2015. Preserving grains for feeding the growing global population: a policy perspective. Presented at the 5th Global Economic Summit on the theme Enabling Food for All. World Trade Centre, Mumbai, India. November 20.

Jayas, D.S. 2015. Grain storage research: current status and future needs. South China University of Technology, Guangzhou, China.

Jayas, D.S. 2015. New concepts for preserving grains, oilseeds and pulses on small farms. Presented at the XII Agricultural Science Congress: Sustainable Livelihood Security for Smallholder Framers. National Dairy Research Institute, Karnal, India. February 3-6.

Jayas, D.S. 2014. Understanding issues during forced air ventilation through bulk grains. Presented at the Beijing University of Posts and Telecommunications, Beijing, China. December 29-31.

Jayas, D.S. 2014. Forced air ventilation through bulk grains for cooling and drying: an overview. Presented at the 6th Postharvest Conference (VI Conferência Brasileira de Pós-Colheita), Maringá, PR, Brazil. October 14-16.

Jayas, D.S. 2014. Grain storage systems !a global perspective. Presented at the International Breakfast of the American Society of Agricultural and Biological Engineers, Montreal, PQ. July 12-16.

Vadivambal, R. and D.S. Jayas. 2013. Current status of applications of bio-imaging in the agri-food industry. Presented at 8th CIGR Section VI International Technical Symposium, Guangzhou, China. November 03-07.

Jayas, D.S. 2013. Role of sensors and bio-imaging for logistics in the agri-food industry. Presented at 2nd International Symposium on Grain Information Technology (ISITG), Beijing University of Post and Telecommunications, Beijing, China. October 23-24.

Jayas, D.S. 2013. What is the future of "Agricultural Engineering" as a discipline within Canadian universities. An Education Forum entitled "Interdisciplinary Engineering for Agriculture and Biosystems" organized by the Can. Soc. Bio. Eng., Orillia, ON.

Jayas, D.S., V. Chelladurai*, F. Jian* and N.D.G. White. 2013. Canola storage management. Presented at the Soils and Crops 2013. University of Saskatchewan, Saskatoon, SK, March 5-6.

Jayas, D.S. 2013. Preserving ingredients for producing high quality food products. Keynote Presentation at the International Conference on Agricultural Engineering (ICAE), Sultan Qaboos University, Muscat, Sultanate of Oman, February 24-26.

Jayas, D.S. 2013. Investments in storing grain properly is a necessity to food sustainability. Presented at the Indian Agricultural Research Institute, Pusa, New Delhi, India, January 15.

Jian*, F., D.S. Jayas, V. Chelladurai and N.D.G. White. 2013. Storage of high oil content canola. Presented at the Sask Canola Annual Producer Conference and Annual General Meeting (AGM), Saskatoon, SK, January 10

Jayas, D.S. 2013. Faculty exchanges through joint research. Presented at the International Conference for Academic Institutions (ICAI-2013), Pandit Deendayal Petroleum University, Gandhinagar, Gujrat, India, January 9-10.

Chelladurai*, V. And D.S. Jayas. 2013. Harvest bags for grain storage: an overview and review of current research. Pp. 15-20. Paper No. IICPT/INCOFTECH/2013/LP-003. Presented at the 3rd International Conference on Food Technology (3rd INCOFTECH-2013), Indian Institute of Crop Processing Technology, Thanjavur, Tamil Nadu, India, January 4-5.

Jayas, D.S. 2012. Integrated commodity management. Presented at the 9th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2012), Antalya, Turkey. October 15-19.

Jayas, D.S. 2012. Research needs for preserving grains for food security and sustainability. Presented at the 14th ICC Cereal and Bread Congress and Forum on Fats & Oils, Beijing, China. August 6-9.

Jayas, D.S. 2012. Preserving un-processed foods as inputs to quality foods. Presented at the 50th National Conference of the Canadian Institute of Food Science and Technology, Niagara Falls, ON. May 27-29.

Jayas, D.S. 2012. Investments in storing grain properly is a necessity to food sustainability. Presented at the Engaging India: Human and Social Dimensions of Science and Technology. Shastri Indo-Canadian Institute. Calgary, AB. June 3-4.

Jayas, D.S. 2012. Beyond summit. Presented at the Engaging India: Human and Social Dimensions of Science and Technology. Shastri Indo-Canadian Institute. Calgary, AB. June 3-4.

Jayas, D.S. 2012. Grain storage for food security and safety: a review of research at the University of Manitoba, Canada. Keynote presentation (PDFE-2012-GST-01). Presented at the 46th Annual Convention of ISAE (Indian Society of Agricultural Engineers) and International Symposium on Grain Storage, Pantnagar, India, February 27-29.

Jayas, D.S. 2012. Preserving grains for food security and sustainability. 1st ICC India Grains Conference. ICC (International Association for Cereal Science and Technology, Vienna, Austria), New Delhi, India, January 16-18.

Jayas, D.S. 2011. Recent developments in postharvest technology - implications in global agribusiness. Global Agribusiness and Food Processing Summit, Bounteous Karnataka, Bangalore, India. December 1-2.

Jayas, D.S. 2011. Managing stored grain as an ecosystem and future research needs. Presented at the International Symposium on Grain Information Technology (ISITG-2011), Beijing University of Post and Telecommunications, Beijing, China. October 10-11.

Jayas, D.S. 2011. Storing grain for increased food security and safety. Presented at the National Academy of Agricultural Sciences (NAAS) Annual Foundation Day Conference, Delhi, India, June 4-5.

Jayas, D.S. 2011. Panel Discussion: Building World Class Sectors - Technology & Innovation. Presented at the Manitoba Bold - The 2011 Business Summit. Winnipeg Chamber of Commerce, Winnipeg, MB, May 25.

Jayas, D.S. 2011. Integrating Biological, Physical and Engineering Sciences to Benefit Society: Examples of the University of Manitoba Experience. Presented at the ISTP Canada - DBT India Workshop, University of Saskatchewan, Saskatoon, SK, February 13-14.

Jayas, D.S. 2010. Current trends in grain storage research. Presented at the International Conference on Food Technology Edition II (INCOFTECH 2010), Indian Institute of Crop Processing Technology, Thanjavur, Tamil Nadu, India, October 30-31.

Jayas, D.S. 2010. Overview of grain storage research at the University of Manitoba and current status of bag storage studies. Presented at the Leading Change and Innovation Conference, the Farm Leadership Council. Saskatoon, SK, October 26-27.

Jayas, D.S. 2010. Silo bags: current status and potential uses. Presented at the 6th Canadian Barley Symposium. Saskatoon, SK, July 25-28.

Jayas, D.S. 2010. The relationship between research and innovation. Presented at An Innovative Manitoba. Winnipeg, MB, January 25.

Jayas, D.S. 2010. The in's and out's of grain bagging systems. Presented at Ag Days. Brandon, MB, January 20.

Jayas, D.S. 2009. Collaborative work with India. Presentation at the India Agri-Business Forum, Manitoba, Agriculture, Food and Rural Initiatives (MAFRI), Winnipeg, MB, December 2.

Jayas, D.S. 2009. Theoretical aspects of drying biological products. Plenary Presentation at the BioEnergy Engineering 2009, American Society of Agricultural and Biological Engineers, St. Joseph, MI, October 12-14.

Jayas, D.S. 2009. Making every kernel count. Plenary Presentation at the International Conference on Food Technology (INCOFTECH2009), The Indian Institute of Crop Processing Technology (IICPT), Thanjavur, India, August28-29.

Neethirajan*, S. and D.S. Jayas. 2009. Nanotechnology for the food and bioprocessing industries. Keynote Address, CIGR Section VI - 5th International Technical Symposium, International Commission of Agricultural and Biosystems Engineering (CIGR), Potsdam, Germany, August 31.

Jayas, D.S. 2009. Trends in foods and food processing in Canada. Keynote Address presented at an International Conference on Enhancing India's Global Competitiveness in Food Trade, organized by IICPT, Delhi, India, May25.

Jayas, D.S. 2008. Materials research at the University of Manitoba. Presented at the International Conference on Recent Trends in Materials and Mechanical Engineering (ICMME 2008), Coimbatore, India, December 18.

Jayas, D.S. and A. Manickavasagan*. 2008. Applications of thermal imaging in food industry. Presented at the 6th International Food Convention (IFCON2008), Mysore, India, December 16.

Jayas, D.S. 2008. Overview of grain storage research at the University of Manitoba. Presented at the Indian Institute of Crop Processing Technology (IICPT), Thanjavur, India, July 19.

Jayas, D.S. 2008. Grain storage: do's and don'ts. Presented at the 41st International Grain Industry Program, Canadian International Grains Institute, Winnipeg, MB, May 29.

Jayas, D.S. 2008. Overview of grain storage research. AACC Meeting, Winnipeg, MB, February 5.

Jayas, D.S. 2007. Research at the University of Manitoba. Indian Agricultural Research Institute, New Delhi, India, December 10.

Neethirajan, S. and D.S. Jayas. 2007. Nanotechnology: Prospects and impacts in agriculture, food and biosystems. Agrisuccess Forum 2008. Farm Credit Canada, Conexus Arts Centre, Regina, SK, November 6.

Neethirajan, S. and D.S. Jayas. 2007. Convergence - big potential: Nanotechnology for food, agriculture and biosystems industries. Winnipeg Business of Science Symposium 2007, Manitoba, MB, October 24.

Jayas, D.S., C. Karunakaran*, A. Manickavasagan*, F. Jian* and R. Vadivambal*. 2007. Detection, movement and control of insects in stored grain - a summary of research at the University of Manitoba. A keynote address presented at AZRA Conference, Hyderabad, July 13-14.

Jayas, D.S. and Q. Zhang. 2007. Development of collaborative grain storage research facility in China. Invited presentation at the International meeting of the American Society of Agricultural and Biological Engineers, Minneapolis, MN. June 17-20.

Neethirajan, S. and D.S. Jayas. 2007. Nanotechnology for the agricultural, food and biosystems industry. Canadian Farm Business Management Council, Innovation Workshop and Annual General Meeting 2007, Ottawa, ON, May 29.

Jayas, D.S. 2006. Food, fuel and pharming. Harry Toop Memorial Science for Saskatchewan Lecture, University of Saskatchewan, Saskatoon, SK, November 15.

Jayas, D.S. 2006. Research at the University of Manitoba. Canadian Light Source, Saskatoon, SK, November 15.

Jayas, D.S. 2006. Preserving grain to feed the increasing world population. University of Saskatchewan, Saskatoon, SK, November 16.

Jayas, D.S. 2006. Functional foods, nutraceuticals and grain storage. University of Nebraska, Lincoln, NE, November 10.

Jayas, D.S. 2006. Agriculture is much more than producing grains and raising hogs. Morden Community Development Corporation, Morden, MB, May 10.

Jayas, D.S. and P.K. Ghosh*. 2006. Preserving quality during grain drying and techniques for measuring grain quality. Invited Plenary Presentation. Pp. 969-981 in Proceedings of the 9th International Working Conference on Stored Product Protection. Campinas, Brazil: Brazilian Post-harvest Association.

Jayas, D.S. 2006. Agriculture is much more than producing grains and raising hogs. Morden Community Development Corporation, Morden, MB, May 10.

Jayas, D.S. 2006. Seed storage in Canada - Do's and Don'ts! Manitoba Institute of Agrologists, Winnipeg, MB, May 09.

Jayas, D.S. and J.C. Keselman. 2006. Manitoba's agri-food research collaborations and strategic investments. Manitoba Rural Adaptation Council's Annual General Meeting - 10 years of advancing opportunity, Winnipeg, MB, March 20.

Ghosh*, P.K. and D.S. Jayas. 2005. Potential use of magnetic resonance imaging in grain drying analysis. Pp. 158-173. In: Proceedings of the 4th Asia Pacific Drying Conference (ADC 2005), A.B. Datta, K.M. Kundu and G.P. Sinha (eds.), Allied Publishers Pvt. Ltd., Kolkata, India.

Jayas, D.S. 2005. Partnering opportunities in the biotech field with the University of Manitoba. 11th Technology Summit & Technology Platform. Confederation of Indian Industry, Delhi, India, September 21-22.

Jayas, D.S. 2005. Indo-Canada biotechnology partnering opportunities. 11th Technology Summit & Technology Platform, Confederation of Indian Industry, Bangalore, India, September 19.

Jayas, D.S. 2005. Stored Product Protection of Organic Food Grains and End Products - A National Workshop. Purdue University, West Lafayette, IN, August 24-25.

Jayas, D.S. 2004. Role of process engineers in the growth of functional foods and nutraceuticals industry. Keynote address during the Emerging Technologies for Agricultural Engineering (ETAE) International Conference, Indian Institute of Technology, Kharagpur, India, December 14-17.

Jayas, D.S. 2004. Use of machine vision and soft X-rays for grain quality monitoring. Keynote address at the International Conference on Trends in Industrial Measurements and Automation (TIMA-2004), Chennai, India, December 15-18.

Jayas, D.S. 2004. Role of agriculture and rural communities in the bioproducts economy. Keynote address in the National Workshop on Prospects of Renewable Energy Sources for Rural Development. Dr. Mahalingam College of Engineering and Technology, Pollachi, Tamil Nadu, India, December 18.

Jayas, D.S. 2004. Managing stored grain using ecosystem approach. Invited presentation to the faculty members and students at the Vidhan Chandra Agricultural University, Mohanpur, West Bengal, India, December 14.

Jayas, D.S. 2004. Functional foods and nutraceuticals: an economic opportunity. Grain Industry Symposium, Canada Grains Council and Grain Growers of Canada, Ottawa, November 28-30.

Jayas, D.S. 2004. Bioproducts - an economic and research opportunity. Keynote Address at the CIGR International Conference, Beijing, China, October 11-14.

Jayas, D.S. 2004. Bioproducts for sustainable economies. North American Trade Corridor Partnership (NAITCP) Summit, Kansas City, MO, May 19-22.

Jayas, D.S. 2004. University research partnership: moving ideas to innovation. Workshop Presentation. "Building the Innovation Society" Conference, Winnipeg, MB, April 27-28.

Jayas, D.S., C. Karunakaran* and J. Paliwal*. 2004. Grain quality monitoring using machine vision and soft X-rays for cereal grains. Plenary presentation. International Quality Grains Conference, Indianapolis, IN, July 19-22.

White, N.D.G., D.S. Jayas and P.K. Ghosh*. 2003. Current practices for storage of grains and oilseeds in Canada. Abstract No. SIV - 09 National Symposium on Crop Production under Changing Environment, The Agricultural Society of India, Calcutta, India, Nov. 27-29. 29 p.

Jayas, D.S. 2003. Research: what is necessary for a successful functional food and nutraceutical industry? Canada: A Global Innovator in Functional Food Ingredients Conference, Winnipeg, MB, Oct. 6-7.

Jayas, D.S. 2003. Are engineers missing out an opportunity by not understanding biology? EMBS Conference, Winnipeg, MB, Feb. 28.

Jayas, D.S., C. Karunakaran* and N.D.G. White. 2002. Detection of insects in grain using soft X-rays. VI AZRA Conference, CRRI, Cuttack, India

Smith, E.A. and D.S. Jayas. 2002. Use of mathematical models for managing stored grain. VI AZRA Conference, CRRI, Cuttack, India.

Jayas, D.S. 2002. The role of biology in shaping engineering profession. IEEE Canadian Conference on Electrical and Computer Engineering, Winnipeg, MB, May 12-15.

Jayas, D.S. 2002. Canadian standards for registration of software engineers. Presented at the Fifteenth Conference on Software Engineering Education and Training, Covington, KY, February 25-27.

Jayas. D.S. 2001. Use of machine vision for grain classification. Angus Banting Memorial Lecture at the McGill University, Macdonald Campus, Ste. Anne de Bellevue, Quebec.

Jayas, D.S. 2001. Applications of machine vision to the agri-food industry. Keynote address at the International Conference on Trends in Industrial Measurements and Automation (TIMA-2001), Chennai, India, August 17-19.

Jayas, D.S. 2001. Image processing in food manufacturing and agricultural processing. Workshop on Advances in Food/Bio-Processing organized by CSAE/SCGR (the Canadian Society for engineering in agricultural, food and biological systems), Guelph, ON, July 8-11.

Jayas, D.S. 2001. Innovative food processing technologies. Western Canadian Conference on Food Industry, Winnipeg, Canada, June 1-2.

Jayas, D.S. and N.D.G. White. 2001. Storage and drying of raw materials: low cost approaches. The World Mycotoxin Forum, Noordwijk aan Zee, The Netherlands, May 13-15.

White, N.D.G. and D.S. Jayas. 2001. Canola/rapeseed storage. International Symposium of Rapeseed Science, Wuhan, China, April 20-22.

Jayas, D.S. 2001. Preserving grain for feeding the increasing world population. Presented at the 88th Indian Science Congress, New Delhi, India, January 02-05.

Jayas, D.S. and N.D.G. White. 2000. Role of mathematical models in preserving grain. Presented at the AZRA-V Conference, Chennai, India, December 26-29.

Jayas, D.S. 2000. Taking students to a higher level of learning. Presented to the academic staff and students at the Tamil Nadu Agricultural University, Coimbatore, India.

Jayas, D.S. 2000. Machine vision for grain classification. Presented to the academic staff and students at the College of Agricultural Engineering, Tamil Nadu Agricultural University, Coimbatore, India.

Jayas, D.S. 1999. Grain and oilseed preservation. Presented at a Seminar on Preservation Technologies for Food, Feed and Fibre organized by Food Development Centre, Portage la Prairie, MB. 5 p.

Jayas, D.S. 1999. Physical properties of grains and design of grain storage and handling systems. Presented at China-Canada Grain Industry Program organized by Canadian International Grains Institute, Winnipeg, MB. 30 p.

Jayas, D.S. 1999. Qualification for graduates of non-accredited curricula in Canada. Workshop organized by Professional Institute of American Society of Agricultural Engineers, Toronto, ON.

Jayas, D.S. 1999. Education, research, and management at a Canadian University. Symposium on Improvement of University Education and Research, Mie University, Tsu City, Japan.

Jayas, D.S. 1999. Education and research in the Department of Biosystems Engineering, Mie University, Tsu City, Japan.

Jayas, D.S., N.D.G. White and W.E. Muir. 1998. Modified atmospheres for control of pests in stored-grain. Presented at the IV AZRA Conference, Vapi, India. 14 p.

Jayas, D.S. 1998. Heat, moisture, and gas transfer in stored-grain ecosystems. Pp. 282-289. Presented at the IX Encontro Nacional de Micotoxinas, Florianopolis, Brazil, May 18-21.

Jayas, D.S. 1997. Capabilities of machine vision systems for analysis of seeds. Presented at the Convention of the Can. Seed Analysts Assoc. of Canada Inc., Winnipeg, MB, June 4-7.

Jayas, D.S., W.E. Muir and N.D.G. White. 1997. Engineering aspects of grain storage for quality maintenance. Pp. 397-411. In: Proc. International Wheat Quality Conference, J.L. Steele and O.K. Chung (eds.), Grain Industry Alliance, Manhattan, KS.

Jayas, D.S. 1997. Engineering profession in Canada. Presented to the staff and invited guests of Citizenship and Immigration Canada, Winnipeg, MB.

Jayas, D.S., W.E. Muir, N.D.G. White and P.G. Fields. 1996. Mathematical models for stored-grain ecosystems. Presented at the XX International Congress of Entomology, Firenze, Italy, August 25-31.

Jayas, D.S. 1994. Potential of application of machine vision in the grain industry. Pp. 61-67. In: Proc. Rapid Instrumental Objective Testing (RIOT), P.C. Williams (ed.), Canadian Grain Commission, Winnipeg, MB.

Jayas, D.S. 1993. Storage and handling of grain in Canada. Seilenko, Poland.

Jayas, D.S. 1993. Obtaining funds to conduct research. Agriculture University of Poznan, Poland.

Jayas, D.S. 1993. Finite element method for solution of field problems. Presented at the XV Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland, August 25 to September 7, 1993.

Jayas, D.S. 1993. Agricultural Engineering Programs in Canada. Presented at the XV Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland, August 25 to September 7, 1993.

Jayas, D.S. 1993. Controlled atmosphere storage of grains. Presented at the XV Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland, August 25 to September 7, 1993.

Jayas, D.S. 1993. Modelling airflow distribution in bulk grains. Presented at the XV Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland, August 25 to September 7, 1993.

Jayas, D.S. 1993. Application of mathematical models to stored grain ecosystems. Presented at the Conference on Porous Media and Environment, Winnipeg, MB, May 7-8, 1993.

Jayas, D.S., N.D.G. White, W.E. Muir and R.N. Sinha. 1992. Controlled atmosphere storage of cereals and oilseeds. Presented at the First Conference on Impact of Applied Zoological Researches on Food Production and Environment, Cuttack, India, December 22-24, 1992.

Jayas, D.S. 1991. Using finite element method for solution of engineering problems. Presented at the XIII Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland, August 29 to September 6, 1991.

Jayas, D.S. 1991. Agricultural Engineering Programs in Canada. Presented at the XIII Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland, August 29 to September 6, 1991.

Jayas, D.S. and G. Mazza. 1990. Engineering aspects of flax storage. Presented at the 16th Annual Meeting of Flax Growers Western Canada, Winnipeg, MB, March 13-14, 1990.

Jayas, D.S. 1989. Grain storage research at the University of Manitoba. Presented at the meeting of the Prairie Region of Grain Elevators and Processor Society, Winnipeg, MB.

Jayas, D.S. 1989. Agricultural Engineering programs and grain drying research in Canada. Presented at the XII Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland, September 17-23, 1989.

Jayas, D.S. 1989. Modelling heat transfer in grain bins. Presented at the XII Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland, September 17-23, 1989.

Jayas, D.S. 1989. Modelling distribution of air in canola bins. Presented at the XII Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland, September 17-23, 1989.

Jayas, D.S. 1989. Effectiveness of oil as a dust suppressant. Presented at the meeting of the Prairie Region of Grain Elevators and Processor Society, Winnipeg, MB. 4 p.

Jayas, D.S. 1986. Principles and terms used in storage monitoring systems. Manitoba Horticultural Industry Days, Winnipeg, MB. 4 p.

Books and Monographs

Chelladurai, V. and D.S. Jayas. 2019. Nanoscience and Nanotechnology in Foods and Beverages. CRC Press, Taylor and Francis Group, LLC, Boca Raton, FL. 326 p.

Navarro, S., D.S. Jayas and K. Alagusundaram (eds.). 2016. Proceedings of the 10th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2016), CAF Permanent Secretariat, Winnipeg, Canada.

Vadivambal, R. and D.S. Jayas. 2016. Bio-Imaging: Principles, Techniques, and Applications. CRC Press, Taylor and Francis Group, LLC, Boca Raton, FL. 381 p.

Navarro, S., Banks, H.J., Jayas, D.S., Bell, C.H., Noyes, R.T., Ferizli, A.G., Emekci, M., Isikber, A.A., Alagusundaram, K. (eds.). 2012. Proceedings of the 9th International Conference on Controlled Atmosphere and Fumigation in Stored Products (CAF2012), Arber Professional Congress Services, Antalya, Turkey.

Donahaye, E.J., S. Navarro, C. Bell, D.S. Jayas, R. Noyes, T.W. Phillips, G. Daolin (eds.). 2011. Proceedings of International Conference on Controlled Atmosphere and Fumigation in Stored Products held at Gold Coast, Australia (August 8-13, 2004). Sichuan Publishing House of Science & Technology, Beijing. China. 555 p.

Prakash, A., J. Rao, D.S. Jayas and J. Allotey (eds.). 2003. Insect pests of stored products: a global scenario. Applied Zoologists Research Association, Central Rice Research Institute, Cuttack, India. 281 p.

Pabis, S., D.S. Jayas and S. Cenkowski. 1998. Grain Drying: Theory and Practice. John Wiley & Sons, Inc., New York, NY. 303 p.

Jayas, D.S., N.D.G. White and W.E. Muir (eds.). 1995. Stored-Grain Ecosystems. Marcel Dekker, Inc., New York, NY. 757 p.

Jayas, D.S., N.D.G. White, W.E. Muir and R.N. Sinha (eds.). 1992. Extended Abstracts: International Symposium on Stored Grain Ecosystems, Department of Agricultural Engineering, University of Manitoba, Winnipeg. 90 p.

Crowe, T., D.S. Jayas and M.G. Britton. 1990. Blind leading the blind into the computer world. Department of Agricultural Engineering, University of Manitoba. 122 p.

Chapters in Books

Singh, C.B. and D. S. Jayas. 2018. Drying, handling, storing and quality monitoring of pulses. Pp. 359-370. In: Achieving sustainable cultivation of grain legumes Volume 1: Advances in breeding and cultivation techniques, S. Sivasankar, D. Bergvinson, P. Gaur, S. K. Agrawal, S. Beebe and M. Tamò (eds), Burleigh Dodds Science Publishing Ltd., Cambridge, UK (ISBN: 978-1-78676-136-1; www.bdspublishing.com). doi: http://dx.doi.org/10.19103/AS.2017.0023.15.

Jayas, D.S., 2016. Food Dehydration. Reference Module in Food Sciences. Elsevier, Pp. 1–10. doi: http://dx.doi.org/10.1016/B978-0-08-100596-5.02913-9.

Jayas, D.S., J. Paliwal, C. Erkinbaev, P.K. Ghosh and C. Karunakaran. 2016. Wheat quality evaluation. Pp. 385-412. In: Computer Vision Technology for Food Quality Evaluation, 2nd ed., D. Sun (ed.), Elsevier, New York, NY.

Sokhansanj, S. and D.S. Jayas. 2014. Drying of foodstuffs. Pp.521-544. In: Handbook of Industrial Drying, 4th ed., A.S. Mujumdar (ed.), CRC Taylor & Francis Group, Boca Raton, FL.

Jayas, D.S. and S. Cenkowski. 2014. Grain property values and their measurement. Pp. 567-593. In: Handbook of Industrial Drying (4th ed.), A.S. Mujumdar (ed.), CRC Taylor & Francis Group, Boca Raton, FL.

Karunakaran*, C., N.S. Visen*, J. Paliwal*, G. Zhang*, D.S. Jayas and N.D.G White. 2014. Machine vision systems for food quality assessment. Pp. 447-481. In: Introduction to Advanced Food Process Engineering, J.K. Sahu (ed.), CRC Press, Boca Raton, FL.

Vadivambal*, R. and D.S. Jayas. 2014. Thermal imaging. Pp. 183-198. In: Process Analytical Technology for Food Industry, O'Donnell, C.P., C. Fagan and P.J. Cullen (eds.), Springer Science, New York, NY.

Karunakaran, C. and D.S. Jayas. 2014. X-ray imaging. Pp. 33-55. In: Imaging with Electromagnetic Spectrum: Applications in Food and Agriculture, A. Manickavasagan and H. Jayasuriya (eds.), Springer-Verlag, Heidelberg, Germany.

Chelladurai*, V. and D.S. Jayas. 2014. Near-infrared imaging and spectroscopy. Pp. 87-127. In: Imaging with Electromagnetic Spectrum: Applications in Food and Agriculture, A. Manickavasagan and H. Jayasuriya (eds.) Springer-Verlag, Heidelberg, Germany.

Singh*, C.B. and D.S. Jayas. 2013. Optical sensors and online spectroscopy for automated quality and safety inspection of food products. Pp. 111-129. In: Robotics and Automation in the Food Industry: Current and Future Technologies, Caldwell, D.G. (ed.), Woodhead Publishing Ltd., Cambridge, UK.

Singh*, C.B. and D.S. Jayas. 2012. Characterization and classification of agri-food products by wavelet signal analysis. Pp. 157-172. In: Wavelets: Classification, Theory and Applications, M. del Valle, R.M. Guerrero and J.M.G. Salgado (eds.), Nova Science Publishers, Inc., New York, NY.

Jayas, D.S. and C.B. Singh*. 2012. Grain quality evaluation by computer vision. Pp. 400-421. In: Computer Vision Technology in the Food and Beverage Industries, D. Sun (ed.), Woodhead Publishing Ltd., Cambridge, UK.

Jian, F. And D.S. Jayas. 2012. Temperature monitoring. Pp. 271-281. In: Stored Product Protection, D.W. Hagstrum, T.M. Phillips and G. Cuperus (eds.), Kansas State University, Manhattan, KS.

Vadivambal*, R. and D.S. Jayas. 2011. Food safety considerations for cereal grains. Pp. 249-265. In: Food Supply and Food Safety: Production, Conservation and Population Impact, M.B. Walsch (ed.), Nova Science Publishers Inc., New York, NY.

Jayas, D.S. and C.B. Singh*. 2011. Drying of agricultural products. Pp. 231-232. In: Encyclopedia of Agrophysics, J. Gliski, J. Horabik, and J. Lipiec (eds.), Springer, Dordrecht, The Netherlands.

White, N.D.G., P.G. Fields, C.J. Demianyk, B. Timlick and D.S. Jayas. 2011. Arthropods of stored cereals, oilseeds, and their products in Canada: artificial ecosystems on grasslands. Pp.267-289. In: Arthropods of Canadian Grasslands (Vol. 2): Inhabitants of a Changing Landscape, K.D. Floate (ed.), Biological Survey of Canada. Ottawa, ON.

Singh*, C.B. and D.S. Jayas. 2011. Spectroscopic techniques for fungi and mycotoxins detection. Pp. 401-414. In: Determining Mycotoxins and Mycotoxigenic Fungi in Food and Feed, S. De Saeger (ed.), Woodhead Publishing Ltd., Cambridge, UK.

Deji*, O.F., R. Vadivambal*, N.D.G. White and D.S. Jayas. 2010. Gender perspectives of the impacts of climate change on agriculture in Nigeria: implications on food security. Pp. 223-234 in Biotechnological Development and Threat of Climate Change in Africa: The Case of Nigeria, Vol I, (eds.). Culliver Verlag.

Deji*, O.F., R. Vadivambal*, N.D.G. White and D.S. Jayas. 2010. Grain insect-pest disinfestations in a situation of climate change: towards adoption of gender responsive postharvest technologies for sustainable agricultural development in Nigeria. Pp. 16-30 in Biotechnological Development and Threat of Climate Change in Africa: The Case of Nigeria, Vol II, (eds.). Culliver Verlag

Ghosh*, P.K. and D.S. Jayas. 2010. Storage of soybean. Pp. 247-275. In: The Soybean: Botany, Production and Uses, G. Singh (ed.), CAB International, London, UK.

Jayas, D.S., C.B. Singh* and J. Paliwal. 2010. Classification of wheat kernels using near-infrared reflectance hyperspectral imaging. Pp. 449-470. In: Hyperspectral Imaging for Food Quality Analysis and Control, D. Sun (ed.), Elsevier Inc., Amsterdam, The Netherlands.

Jayas, D.S., P.K. Ghosh*, J. Paliwal and C. Karunakaran. 2008. Quality evaluation of wheat. Pp. 351-376. In: Computer Vision Technology for Food Quality Evaluation, D. Sun (ed.), Elsevier, Amsterdam, The Netherlands.

Ghosh*, P.K., D.S. Jayas, C. Srivastava and A.N. Jha. 2007. Drying and storing lentils: Engineering and entomological aspects. Pp. 385-414. In: Lentil - an Ancient Crop for Modern Times, S.S. Yadav, D. McNeil, and P.C. Stevenson (eds.), Springer, The Netherlands.

Demianyk, C.J., N.D.G. White and D.S. Jayas. 2007. Storage of chickpea. Pp. 538-554. In: Chickpea Breeding and Management, S.S. Yadav, B. Redden, W. Chen and B. Sharma (eds.), CABI International, Oxfordshire, UK.

Sokhansanj, S. and D.S. Jayas. 2006. Drying of foodstuff. Pp.521-546. In: Handbook of Industrial Drying, 3rd ed., A.S. Mujumdar (ed.), CRC Taylor & Francis Group, Boca Raton, FL.

Jayas, D.S. and S. Cenkowski. 2006. Grain property values and their measurement. Pp.575-603. In: Handbook of Industrial Drying (3rd ed.), A.S. Mujumdar (ed.), CRC Taylor & Francis Group, Boca Raton, FL.

Ghosh*, P.K., D.S. Jayas and Y.C. Agrawal. 2004. Drying of oilseeds - a review. Recent Res. Devel. Crop Sci. (Research Signpost) (1):71-96.

Farrell, G., N.D.G. White and D.S. Jayas. 2004. Canola (rapeseed): Canada. Pp. 159-180. In: Crop Post-Harvest Science and Technology, Vol. 2 Durables. R. Hodges and G. Farrell (eds.), Blackwell Publishing, UK.

Jayas, D.S. 2003. Equilibrium moisture content. Pp. 264-267. In: Encyclopaedia of Agricultural, Food, and Biological Engineering, D.R. Heldman (ed.), Marcel Dekker Inc., New York, NY.

White, N.D.G. and D.S. Jayas. 2003. Insect pests of stored grain and its products in Canada and the United States. Pp. 178-202. In: Insect pests of stored products: a global scenario, Prakash, A., J. Rao, D.S. Jayas and J. Allotey (eds.). Applied Zoologists Research Association, Central Rice Research Institute, Cuttack, India.

Hulasare*, R.B., D.S. Jayas and B.L. Dronzek. 2003. Grain grading systems. Pp. 41-55. In: Handbook of Postharvest Technology - Cereals, Fruits, Vegetables, Tea, and Spices, A. Chakraverty, A.S. Mujumdar, G.S.V. Raghavan and H.S. Ramaswamy (eds.), Marcel Dekker, Inc., New York, NY.

White, N.D.G. and D.S. Jayas. 2003. Controlled atmosphere storage of grain. Pp. 235-251. In: Handbook of Postharvest Technology - Cereals, Fruits, Vegetables, Tea, and Spices, A. Chakraverty, A.S. Mujumdar, G.S.V. Raghavan and H.S. Ramaswamy (eds.), Marcel Dekker, Inc., New York, NY.

Jayas, D.S. and W.E. Muir. 2001. Aeration systems design. Pp. 195-249. In: The Mechanics and Physics of Modern Grain Aeration Management, S. Navarro and R.T. Noyes (eds.), CRC Press LLC, Boca Raton, FL.

Navarro, S., R. Noyes and D.S. Jayas. 2001. Stored grain ecosystem and heat, and moisture transfer in grain bulks. Pp. 35-78. In: The Mechanics and Physics of Modern Grain Aeration Management, S. Navarro and R.T. Noyes (eds.), CRC Press LLC, Boca Raton, FL.

Mazza, G. and D.S. Jayas. 2000. Controlled and modified atmosphere storage. Pp. 149-173. In: Food Shelf Life Stability B Chemical, Biochemical and Microbiological Changes, N.A.M. Eskin and D.S. Robinson (eds.), CRC Press Inc., Boca Raton, FL.

Cenkowski, S. and D.S. Jayas. 2000. Energy usage in food processing plants. Pp. 627-632. In: Encyclopaedia of Food Science and Technology, Y.H. Hui (ed.), 2nd Edition. John Wiley & Sons, Inc., New York, NY.

Jayas, D.S., P. Shatadal* and S. Cenkowski. 2000. Cleaning-in-place (CIP). Pp. 351-353. In: Encyclopaedia of Food Science and Technology, Y.H. Hui (ed.), 2nd Edition. John Wiley & Sons, Inc., New York, NY.

Jayas, D.S. and W.E. Muir. 1998. Mathematical modelling of stored-grain ecosystems. Pp. 8.1-8.41. In: Grain Preservation Biosystems, W.E. Muir (ed.). Department of Biosystems Engineering, University of Manitoba, Winnipeg, MB.

Majumdar*, S., X. Luo* and D.S. Jayas. 1996. Image processing and its applications in food process control. Pp. 207-234. In: Computerized Control Systems in the Food Industry, G.S. Mittal (ed.), Marcel Dekker, Inc., New York, NY.

Ryniecki*, A. and D.S. Jayas. 1996. Process control for thermal processing. Pp. 277-294. In: Computerized Control Systems in the Food Industry, G.S. Mittal (ed.), Marcel Dekker, Inc., New York, NY.

Jayas, D.S. 1995. Mathematical modeling of heat, moisture, and gas transfer in stored-grain ecosystems. Pp. 527-567. In: Stored-Grain Ecosystems, D.S. Jayas, N.D.G. White and W.E. Muir (eds.), Marcel Dekker Inc., New York, NY.

Sokhansanj, S. and D.S. Jayas. 1995. Drying of foodstuff. Pp. 589-625. In: Handbook of Industrial Drying, 2nd ed., A.S. Mujumdar (ed.), Marcel Dekker Inc., New York, NY.

Jayas, D.S. 1994. Food dehydration. Pp. 285-292. In: Encyclopaedia of Agricultural Science, C.J. Arntzen (ed.), Academic Press, San Diego, CA.

Jayas, D.S. 1992. Bibliography on sorption isotherms of foods. Pp. 515-526. In: Drying of Solids, A.S. Mujumdar (ed.), International Science Pub., New York, NY.

Shatadal*, P. and D.S. Jayas. 1992. Sorption isotherms of foods. Pp. 433-448. In: Drying of Solids, A.S. Mujumdar (ed.), International Science Pub., New York, NY.

Cenkowski, S. and D.S. Jayas. 1991. Energy usage in food processing plants. Pp. 708-714. In: Encyclopaedia of Food Science and Technology, Y.H. Hui (ed.), John Wiley & Sons, Inc., New York, NY.

Jayas, D.S., P. Shatadal* and S. Cenkowski. 1991. Cleaning-in-place (CIP). Pp. 438-441. In: Encyclopaedia of Food Science and Technology, Y.H. Hui (ed.), John Wiley & Sons, Inc., New York, NY.

Zoerb, G.C., C.M. Milne and D.S. Jayas. 1991. Strain. Chapter 2. Pp. 1-20. In: Instrumentation and Measurement for Environmental Sciences, Z.A. Henry, G.C. Zoerb and G.S. Birth (eds.), Am. Soc. Agric. Eng., St. Joseph, MI.

Jayas, D.S. 1990. Resistance to airflow through granular products. Pp. 197-207. In: Drying of Solids, A.S. Mujumdar (ed.), Sarita Prakashan, New Delhi, India.

Sokhansanj, S. and D.S. Jayas. 1990. Stochastic grain simulation. Pp. 208-210. In: Drying of Solids, A.S. Mujumdar (ed.), Sarita Prakashan, New Delhi, India.

Jayas, D.S. 1987. Review of Engineering Properties of Food. M.A. Rao and S.S.H. Rizvi (eds.). Marcel Dekker Inc., NY. Cereal Foods World 32(6):447.

Sokhansanj, S. and D.S. Jayas. 1987. Drying of foodstuff. Pp. 517-554. In: Handbook of Industrial Drying, A.S. Mujumdar (ed.), Marcel Dekker Inc., New York, NY.

Singh (Jayas), D. and S. Sokhansanj. 1984. Recent development in natural drying of cereals with respect to systems design. Pp. 456-467. In: Drying 84, A.S. Mujumdar (ed.), Hemisphere Publishing Corporation, New York, NY.

Unrefereed Journal Articles

Jayas, D.S. 2019. Nanotechnology's potential for enhancing food safety. *Resource* **May/June**: 4-5.

Jayas, D.S. 2017. The role of sensors and bio-imaging in monitoring food quality. *Resource* **March/April**: 12-13.

Jayas, D.S. 2016. Boost grain preservation before production. *Resource* **March/April**: 10-11 (reproduced from 2013 article published on scidev.net).

Jayas, D.S. 2013. Boost grain preservation before production. Accessible through Science Development Network link: http://www.scidev.net/global/food-security/opinion/boost-grain-preservation-before-production.html

Jayas, D.S. 2009. Research needs for functional foods and nutraceuticals. *World Agri Business*, **July**:16-19.

Li, H., J. Paliwal, D.S. Jayas, and N.D.G. White. 2009. Disinfestation of wheat using liquid nitrogen aeration. Proceedings of the World Academy of Science, Engineering and Technology, **37**:29-31.

Fan*, L. and D.S. Jayas. 2008. Comparative grain supply chain in Canada and China. *AMA (Agricultural Mechanization in Asia, Africa and Latin America)* **39**(4):14-21.

Lei*, F. And D.S. Jayas. 2005. Analysis and discussion to Canadian grain supply chain (export system). *Grain Distribution Technology,* **October**:1-4.

Jayas, D.S. 2005. Catalysts for success. *Biospectrum,* **November**:48-49.

Jayas, D.S., A.L. Mohan* and C. Karunakaran*. 2005. Unloading automation implemented in grain industry. *Resource*, **September**:6-7.

Alagusundaram, K., D.S. Jayas, and K. Nalladurai. 2003. Comparative grain storage in India and Canada. *AMA (Agricultural Mechanization in Asia, Africa and Latin America)*, **34**(3):46-52.

Jayas, D.S. 2002. A centre of collaboration: University of Manitoba leads initiative for new products from plants. *Resource*, **July**:11-12.

Jayas, D.S. 2000. Controlling insects in stored grain using modified atmospheres of elevated carbon dioxide. *Canadian Chemical News,* **July/August**:10-11.

Jayas, D.S. 1999. Grain preservation. *Resource,* **July**:7-8.

Tewari*, G. and D.S. Jayas. 1997. Aseptic processing. *Resource* **4**(5):9-10.

Norum, D.I. and D.S. Jayas. 1995. Instructions for preparing a paper for Canadian Agricultural Engineering. *Canadian Agricultural Engineering*, **37**(3):239-243.

Jayas, D.S., B. Khangura and N.D.G. White. 1991. Controlled atmosphere storage of grains. *Postharvest News and Information*, **2**(6):423-427.

Alagusundaram, K., D.G. Clough and D.S. Jayas. 1990. Drag force analysis of deep placement fertilizer applicator for rice. *AMA (Agricultural Mechanization in Asia, Africa and Latin America)*, **21**(2):21-26.

Alagusundaram*, K. and D.S. Jayas. 1990. Airflow resistance of grains and oilseeds. *Postharvest News and Information*, **1**(4):279-283.

Shatadal*, P. and D.S. Jayas. 1990. Moisture sorption isotherms of grains and oilseeds. *Postharvest News and Information*, **1**(6):447-451.

Sokhansanj, S., D.S. Jayas and J.D. Wassermann. 1989. Predicting dryer performance using similitude analysis. *AMA (Agricultural Mechanization in Asia, Africa and Latin America)*, **20**(2):19-22.

Muir, W.E., D.S. Jayas, M.G. Britton, R.N. Sinha and N.D.G. White. 1989. Interdisciplinary grain storage research at the University of Manitoba and Agriculture Canada. *Powder Handling and Processing*, **1**(3):281-295.

Singh (Jayas), D., S. Sokhansanj and B.P.N. Singh. 1984. Cylinder concave mechanism and chemical treatment for dehulling pigeon peas. *AMA (Agricultural Mechanization in Asia, Africa and Latin America)*, **15**(2):53-58.

Unrefereed Conference Proceedings

Jayas, D.S. 2016. Preserving cereals, grains, oilseeds and pulses on small farms. Pp. 207-214. Proceedings of the XII Agricultural Science Congress: Sustainable Livelihood Security for Smallholder Framers, Srivastava, A.K., T.K. Datta, K.K. Vass, V.K. Gupta and S. Ayyappan (eds.). National Academy of Agricultural Sciences, New Delhi, India.

Jayas, D.S. 2012. Research needs for preserving grains for food security and sustainability. Pp. 172-173. Proceedings of the 14th ICC Cereal and Bread Congress and Forum on Fats & Oils, Beijing, China.

Ghosh*, P.K. and D.S. Jayas. 2008. Three-dimensional barley drying model based on non-uniform initial moisture distribution and water diffusivities in endosperm and embryo. Proceeding of the 16th International Drying Symposium (IDS2008), Drying 2008, B.N. Thorat (ed.), **A**:387-391.

Ghosh*, P.K. and D.S. Jayas. 2008. Use of spectroscopic data for automation in food processing industry. Proceeding of the Food Processing Automation Conference. ASABE, St. Joseph, MI

Manickavasagan*, A., D.S. Jayas, R. Vadivambal* and N.D.G. White. 2006. Temperature variations in a chicken pie after microwave heating. Proceedings of Young Researchers Conference on Applied Sciences (CAS 2006), Vol. 5, 343-348, University Publication Centre (UPENA), Selangor, Malaysia.

Manickavasagan*, A., D.S. Jayas, R. Vadivambal* and N.D.G. White. 2005. Thermal imaging to study the heating pattern of wheat in an industrial microwave dryer. Pp. 345-353. Proceedings InfraMation 2005.

Fan*, L. and D.S. Jayas. 2005. Development of supply chain logistics and practices of Canadian grain supply chain. Seminar on Huang-Huai Hai Grain Modern Logistics, State Administration of Grain of China, Zhengzhou, China, May 10-12.

Neethirajan*, S., C. Karunakaran*, D.S. Jayas and N.D.G. White. 2004. X-ray CT - an emerging research tool for food industry. Pp. 250-256. Emerging Technologies for Agricultural Engineering (ETAE) International Conference, Indian Institute of Technology, Kharagpur, India, December 14-17.

Ghosh*, P.K. and D.S. Jayas. 2004. Magnetic resonance imaging: potential use for grain research. Pp. 130-136. Emerging Technologies for Agricultural Engineering (ETAE) International Conference, Indian Institute of Technology, Kharagpur, India, December 14-17.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2004. Soft X-rays: a potential insect detection method in the grain handling facilities. International Quality Grains Conference, Indianapolis, IN, July 19-22.

Mohan*, A.L., C. Karunakaran*, D.S. Jayas and N.D.G. White. 2004. Classification of bulk oil seeds, speciality seeds and pulses using their reflectance characteristics. International Quality Grains Conference, Indianapolis, IN, July 19-22.

Hulasare*, R.B., N.D.G. White, and D.S. Jayas. 2002. Effect of suboptimal temperatures and sublethal carbon dioxide levels on *Cryptolestes ferrugineus* alone and in combination with *Tribolium castaneum*. Pp. 65-70. In: Credland, P.F., D.M. Armitage, C.H. Bell, P.M. Cogan, E. Highley (eds.). Proceedings of the 8th International Working Conference on Stored Product Protection, York, UK, CABI Publishing, Wallingford, UK.

Jayas, D.S. and N.D.G. White. 2002. University of Manitoba centre for grain storage research and development. Pp. 22-25. In: Credland, P.F., D.M. Armitage, C.H. Bell, P.M. Cogan, E. Highley (eds.). Proceedings of the 8th International Working Conference on Stored Product Protection, York, UK, CABI Publishing, Wallingford, UK.

White, N.D.G., C.J. Demianyk and D.S. Jayas. 2002. Multiplication of stored-product mites on Canadian wheat and oilseed cultivars. Pp. 402-405. In: Credland, P.F., D.M. Armitage, C.H. Bell, P.M. Cogan, E. Highley (eds.). Proceedings of the 8th International Working Conference on Stored Product Protection, York, UK, CABI Publishing, Wallingford, UK.

White, N.D.G. and D.S. Jayas. 2001. Principles of canola (rapeseed) storage. Pp. 275-286. In: Proceedings of International Symposium on Rapeseed Science. Houli, L. and F. Tingdong (eds.), New York, NY: Science Press.

Jayas, D.S., N.D.G. White, M.G. Peck* and W.E. Muir. 2001. Validation of models for controlled atmosphere gas loss from bolted-steel granaries. Pp. 497-506. In: Proc. Intern. Conf. Controlled Atmosphere and Fumigation in Stored Products. Donahaye, E.J., S. Navarro and J.G. Leesch (eds.), Executive Printing Services, Clovis, CA.

Jayas, D.S. 2000. Ecossistemas: interações bióticas e abióticas - monitoramento (Heat, moisture, gas transfer in stored-grain ecosystems). Pp. 282-289. In: Atualidades em micotoxinas e armazenagem de grãos, V.M. Scussel (ed.), Ed. Da Autora, Florianópolis, Brazil.

Jayas, D.S. 1998. Research at the Biosystems Engineering Department of the University of Manitoba. Pp. 1004-1011. In: Proceedings of International Agricultural Engineering Conference, Salokhe, V.M. and J. Zhang (eds.), Asian Institute of Technology, Bangkok, Thailand.

Mann*, D.D., D.S. Jayas, N.D.G. White and W.E. Muir. 1998. Preventing insect entry into welded-steel hopper bins. Pp. 1326-1332. In: Proceedings of the 7th International Working Conference on Stored-product protection, Beijing, China.

White, N.D.G., C.J. Demianyk, R.N. Sinha, J.T. Mills, D. Abramson, W.E. Muir and D.S. Jayas. 1998. Multi-year monitoring for quality changes in grain stored in 550 tonne capacity grain bin in western Canada. Pp. 1301-1313. In: Proceedings of the 7th International Working Conference on Stored-product protection, Beijing, China.

Jayas, D.S., W.E. Muir and N.D.G. White. 1997. Mathematical models for carbon dioxide distribution and loss in bulks of grain. Pp. 213-223. In: Proceedings of International Conference on Controlled

Atmosphere and Fumigation in Stored Products, Donahaye, E.J., S. Navarro and A. Varnava (eds.), Printco Ltd., Nicosia, Cyprus.

Jayas, D.S. 1996. Potential applications of machine vision to the grain industry. Pp. 633-642. In: Proceedings of International Agricultural Engineering Conference, B. Mulik and S. Dhumal (eds.), Bhumata Charitable Trust, Pune, India.

White, N.D.G., D.S. Jayas, C.J. Demianyk, P.G. Fields, W.E. Muir. 1996. Alternatives to methyl bromide for space fumigation and commodity treatment. Pp. 69-82. Proceedings of Alternatives to Methyl Bromide Workshop, May 29-31, 1996, Toronto, ON.

Sinicio, R., W.E. Muir and D.S. Jayas. 1995. Analise de sensibilidade de um modelo matematico para simular aeracao de trigo armazenado no Brasil. In: Congresso Brasileiro de Engenharia Agricola, Vicosa, Brazil, 24 July 1995.

Majumdar*, S., D.S. Jayas and N.R. Bulley. 1995. Potential applications of machine vision to the grain industry. Proceedings of the Food Processing Automation Conference IV, Chicago, IL. 12 p.

White, N.D.G., P.G. Fields, C.J. Demianyk, D.S. Jayas and W.E. Muir. 1994. Canadian research on methyl bromide alternatives in post-harvest grain and in structural treatments. Pp. 53-1:53-4. Proceedings of the annual interim research conference on methyl bromide alternatives and emissions reductions, Orlando, FL.

Alagusundaram*, K., D.S. Jayas, W.E. Muir, N.D.G. White and R.N. Sinha. 1994. Numerical modelling of the movement of carbon dioxide through stored wheat bulks. Pp. 16-21. Proceedings of the 6th International Working Conference on Stored-product protection, E. Highley, E.J. Wright, H.J. Banks and B.R. Champ (eds.), CAB International, Oxon, UK.

Ryniecki, A. and Jayas, D.S. 1993. Stochastic model of mass transfer in near-ambient drying of grain. Presented at the XV Summer School on Systems Engineering and Computer Simulation of Agricultural Systems, Nowa Kaletka, Poland (organized by Warsaw agricultural University), August 25 to September 7, 1993.

Alagusundaram*, K., D.S. Jayas, W.E. Muir, N.D.G. White and R.N. Sinha. 1993. Finite element prediction of three-dimensional carbon dioxide diffusion in grain bins. Pp. 281-292. In: Proceedings of the International Conference on Controlled Atmosphere and Fumigation in Grain Storages, S. Navarro and E. Donahaye (eds.), Caspit Press Ltd., Jerusalem, Israel.

Cofie-Agblor, R., W.E. Muir, S. Cenkowski and D.S. Jayas. 1993. Carbon dioxide gas sorption in stored wheat. Pp. 261-269. In: Proceedings of the International Conference on Controlled Atmosphere and Fumigation in Grain Storages, S. Navarro and E. Donahaye (eds.), Caspit Press Ltd., Jerusalem, Israel.

Jayas, D.S. 1993. Rapporteur's Report: Physical and chemical processes in the application of CA/fumigation. Pp. 551-553. In: Proceedings of the International Conference on Controlled Atmosphere and Fumigation in Grain Storages, S. NAVARRO and E. Donahaye (eds.), Caspit Press Ltd., Jerusalem, Israel.

Shunmugam*, G., D.S. Jayas and N.D.G. White. 1993. Controlling rusty grain beetles with modified atmospheres. Pp. 107-114. In: Proceedings of the International Conference on Controlled Atmosphere and Fumigation in Grain Storages, S. NAVARRO and E. Donahaye (eds.), Caspit Press Ltd., Jerusalem, Israel.

White, N.D.G., D.S. Jayas, W.E. Muir and R.N. Sinha. 1993. Controlled atmosphere storage research and technology in Canada. Pp. 13-22. In: Proceedings of the International Conference on Controlled Atmosphere and Fumigation in Grain Storages, S. NAVARRO and E. Donahaye (eds.), Caspit Press Ltd., Jerusalem, Israel.

White, N.D.G. and D.S. Jayas. 1993. Quality changes in grain under controlled atmosphere storage. Pp. 205-214. In: Proceedings of the International Conference on Controlled Atmosphere and Fumigation in Grain Storages, S. NAVARRO and E. Donahaye (eds.), Caspit Press Ltd., Jerusalem, Israel.

White, N.D.G. and D.S. Jayas. 1992. Carbon dioxide as a control agent for insects and mites in stored grain. Pp. 28-33. In: Proceedings of the Manitoba Agri-Forum, Winnipeg, MB.

Irvine*, D.A., G. Mazza and D.S. Jayas. 1992. Energy conservation in potato storages. Proceedings of the 20th Annual Conference of the Prairie Potato Council.

Cenkowski, S., D.S. Jayas and J.K. Daun. 1991. Potential of low temperature drying for reducing green seeds in canola. Pp 749-754. In: Proceedings of the 8th International Rapeseed Congress (GCIRC), D.I. McGregor (ed.), Canola Council of Canada, Winnipeg, MB.

Jayas, D.S. and N.D.G. White. 1991. Engineering properties and spoilage susceptibility of canola meal. Pp 812-817. In: Proceedings of the 8th International Rapeseed Congress (GCIRC), D.I. McGregor (ed.), Canola Council of Canada, Winnipeg, MB.

Mazza, G., D.S. Jayas and S.S. Deshpande. 1991. Moisture sorption characteristics of *Lathyrus* pea. Proc. of the 8th World Congress of Food Science and Technology, Toronto, ON. 14 p.

Shatadal*, P., D.S. Jayas and N.R. Bulley. 1991. Fourier and spatial domain analysis of image texture. Pp. 36-41. In: Proceedings Automated Agriculture for the 21st Century, Chicago, IL.

White, N.D.G. and D.S. Jayas. 1991. Effects of periodically elevated carbon dioxide on stored-wheat ecosystems at cool temperatures. Pp. 925-932. In: Proceedings of the 5th International Working Conference on Stored-Product Protection, F. Fleurat-Lessard and P. Ducom (eds.), Bordeaux, France.

Jayas, D.S. and S. Sokhansanj. 1986. Thin-layer drying of wheat at low temperatures. Pp. 844-847. In: Drying '86, A.S. Mujumdar (ed.), Hemisphere Publishing Corporation, New York, NY.

Singh (Jayas), D. and S. Sokhansanj. 1985. Axisymmetric transient field problems (finite element formulation). Pp 425-441. In: Proceedings of the Canadian Society of Civil Engineering, Saskatoon, SK.

Sokhansanj, S., T. Kameoka and D. Singh (Jayas). 1985. Quality assessment in grain drying simulation: a stochastic approach. Pp. 1001-1006. In: Proceedings of the Third International Conference on Physical Properties of Agricultural Materials and their Influence on Design and Performance of Agricultural Machines and Technologies, Prague, Czechoslovakia.

Sokhansanj. S., H. Wood, D. Pulkinen and D. Singh (Jayas). 1984. Computer control of a high temperature alfalfa dryer: instrumentation and performance. Pp 559-564. In: Proceedings of the Fourth International Drying Symposium, Kyoto, Japan.

Sokhansanj, S., D. Singh (Jayas) and P. Gebhardt. 1983. Low temperature system design and analysis using desktop computers. Pp 682-691. In: Proceedings of a Conference on Agricultural Electronics--1983 and Beyond, Am. Soc. Agric. Eng., St. Joseph, MI.

Conference Papers

Total number of pages at the end of an entry are number of typed single spaced pages and these papers were presented at the annual meetings of the Canadian Society for Bioengineering (formerly known as Canadian Society for Agricultural Engineering) and the American Society of Agricultural and Biological Engineers (formerly known as American Society of Agricultural Engineers). The papers are distributed at the meetings and also can be obtained from the headquarters of both societies.

Jian, F., T. Senthilkumar*, D.S. Jayas, P.G. Fields and N.D.G. White. 2016. Bulk physical properties of stored black and white beans. Abstract NO1, presented at the Tenth Canadian Pulse Research Workshop, Winnipeg, Manitoba, October 25-28.

Senthilkumar*, T., D.S. Jayas, N.D.G. White, P.G. Fields and T. Gräfenhan. 2016. Detection of ochratoxin A contamination in stored wheat and barley using near-infrared (NIR) hyperspectral imaging system. Poster No: 68, presented at the World Mycotoxin Forum, Winnipeg, Manitoba, June 6-9, 2016.

Ravikanth*, L., V. Chelladurai* and D.S. Jayas. 2015. Detection of the broken kernels content in bulk wheat sample using Near-Infrared (NIR) hyperspectral imaging. Paper Number: 2190223. Am. Soc. Agric. Biol. Eng., St. Joseph, MI.

Senthilkumar *, T., D.S. Jayas, N.D.G. White, P.G. Fields and T. Gräfenhan. 2015. Detection of fungal infection in barley using near infrared hyperspectral imaging. Oral Paper Number: 15133. CSBE-

SCGAB, Winnipeg, MB.

Karuppiah*, K., D.S. Jayas and N.D.G. White. 2015. Detection of fungal infection in pulses using near infrared (NIR) hyperspectral imaging. Poster Number: 15100. CSBE-SCGAB, Winnipeg, MB.

Chelladurai*, V., F. Jian*, R. Vadivambal* and K. Folk. 2015. Feasibility of using natural fibers as relative humidity sensor filters in stored grain bins. Poster Number: 15130. CSBE-SCGAB, Winnipeg, MB.

Chelladurai*, V., L. Ravikanth*, S. Kaliramesh* and D.S. Jayas. 2014. Support vector machine and back propagation neural network classifiers to detect hidden infestations of *Callosobruchus maculatus* in mung beans. Paper Number: 141912970. Am. Soc. Agric. Biol. Eng., St. Joseph, MI.

Senthilkumar*, T., D.S. Jayas, N.D.G. White, P.G. Fields and T. Graefenhan. 2014. Recent developments in ochratoxin A extraction, detection and quantification methods: a review. Paper Number: 141913674. Am. Soc. Agric. Biol. Eng., St. Joseph, MI.

Ravikanth*, L., D.S. Jayas and N.D.G. White. 2014. Classification of dockage and wheat using near infrared (NIR) hyperspectral imaging. Paper Number: 141891636. Am. Soc. Agric. Biol. Eng., St. Joseph, MI.

Manickavasagan, A., M.A. Teena*, D.S. Jayas and L. Ravikanth*. 2014. Detection of fungal infected dates using NIR hyper-spectral imaging. Paper Number: 141899173. Am. Soc. Agric. Biol. Eng., St. Joseph, MI.

Singh, C.B., D.S. Jayas and R. Larson. 2014. Fan control strategies for in-bin natural air drying of grain in western Canada. Paper Number: 141914222. Am. Soc. Agric. Biol. Eng., St. Joseph, MI.

Ravikanth*, L. and D.S. Jayas. 2014. Classification of cereals using near infrared (NIR) hyperspectral imaging. The 5th International Workshop on Applications of Computer Image Analysis and Spectroscopy in Agriculture, Montreal, PQ. July 12-13.

Moses*, J.A., V. Chelladurai*, K. Alagusundaram and D.S. Jayas. 2013. Simulation of airflow distribution in stored bulk grain - a review. Paper No. CSBE13080. Can. Soc. Bio. Eng., Orillia, ON, 7 p.

Divekar*, M.T., C. Karunakaran, X. Liu, F. Borondics, D.S. Jayas, V. Chelladurai* and S. Shanmugasundaram. 2013. Optimization of FT-IR spectrometer and sample preparation to study the effect of microwave treatment of pulses. Paper No. CSBE13119. Can. Soc. Bio. Eng., Orillia, ON.

Senthilkumar*, T., D.S. Jayas, N.D.G. White and P.G Fields. 2013. Detection of ochratoxin A in wheat using near-infrared hyperspectral imaging. Paper No. CSBE13121. Can. Soc. Bio. Eng., Orillia, ON.

Chelladurai*, V., S. Kaliramesh* and D.S. Jayas. 2012. Detection of *Callosobruchus maculatus* (F.) infestation in mung bean (*Vigna radiata*) using thermal imaging technique. Paper No. NABEC/CSBE 12-121. Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 7 p.

Ravikanth*, L., D.S. Jayas, K. Alagusundaram and V. Chelladurai. 2012. Measurement of physical dimensions of *Vigna radiata* (mug bean). Paper No. PDFE-2012-ACP-15. Presented at the 46th Annual Convention of ISAE (Indian Society of Agricultural Engineers) and International Symposium on Grain Storage, Pantnagar, India, February 27-29.

Senthilkumar*, T., C.B. Singh*, D.S. Jayas and N.D.G. White. 2012. Detection of fungal infection in canola using NIR hyperspectral imaging. Paper No. PDFE-2012-PHL-06. Presented at the 46th Annual Convention of ISAE (Indian Society of Agricultural Engineers) and International Symposium on Grain Storage, Pantnagar, India, February 27-29.

Mahesh*, S., D.S. Jayas, J. Paliwal and N.D.G. White. 2011. Near-infrared hyperspectral imaging for protein and hardness predictions of bulk samples of western Canadian wheat from different locations and crop years using multivariate regression models. Paper No. CSBE11-119. Can. Soc. Bio. Eng., Winnipeg, MB, 11 p.

Chelladurai*, V., F. Jian*, D.S. Jayas and N.D.G. White. 2011. Feasibility of storing canola in harvest bags (silo bags) under western Canadian prairie conditions: preliminary results. Paper No. CSBE11-120 Can. Soc. Bio. Eng., Winnipeg, MB, 8 p.

Zhang*, W., C.B. Singh*, D.S. Jayas and N.D.G. White. 2011. Influence of growing location, sample presentation technique and foreign material on features extracted from colour images of wheat. Paper No. CSBE11-129. Can. Soc. Bio. Eng., Winnipeg, MB, 12 p.

Mahesh*, S., D.S. Jayas, J. Paliwal and N.D.G. White. 2011. Neural network prediction of wheat classes and moisture contents of bulk samples from different growing locations and crop years. Paper Number: 1110539 Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 17 p.

Senthilkumar*, T., V. Chelladurai, D.S. Jayas, N.D.G. White., M.S. Freund, D.J. Thomson and C. Shafai. 2010. Volatile organic compounds released by stored grain insects in barley. Presented at the 66th Annual meeting of the Entomological Society of Manitoba, Winnipeg, MB, (Oral).

Jian*, F., D.S. Jayas, N.D.G. White and P.G. Fields. 2010. Finding a needle in the haystack: density estimation and detection of insects in grain. Presented at the 66th Annual meeting of the Entomological Society of Manitoba, Winnipeg, MB, (Oral).

Loganathan*, M., D.S. Jayas, P.G. Fields, N.D.G. White and K. Alagusundaram. 2010. Heat treatment to control various stages of cowpea beetle, *Callosobruchus maculatus* (Fab.) (Coleoptera; Bruchidae) in chickpea. Presented at the 66th Annual meeting of the Entomological Society of Manitoba, Winnipeg, MB, (Oral).

Manickavasagan, A., D.S. Jayas, M. Subramaniam and A. Sarkar, 2010. Thermal imaging to monitor flour temperature in wheat mills. Paper No. 1010012. Am. Soc. Agric. Biol. Eng., St. Joseph, MI, (Oral).

Manickavasagan*, A., D.S. Jayas and R. Vadivambal. 2010. Temperature rise and non-uniformity in chicken soup after microwave heating. Paper No. 1010003 (Poster No. 22). Am. Soc. Agric. Biol. Eng., St. Joseph, MI.

Manickavasagan*, A. and D.S. Jayas. 2010. Free-fatty-acid values of wheat grains from uneven microwave heating in a continuous type microwave dryer. Paper No. 1010004 (Poster No. 23). Am. Soc. Agric. Biol. Eng., St. Joseph, MI.

Vadivambal*, R., D.S. Jayas and N.D.G. White. 2010. Role of infrared thermal imaging in stored products protection. Paper No. CSBE 100411. XVIIth World Congress of the International Commission of Agricultural and Biosystems Engineering (CIGR), Quebec City, PQ.

Neethirajan*, S., M.S. Freund, D.S. Jayas, C. Shafai, D.J. Thomson and N.D.G. White. 2010. Development of carbon dioxide (CO_2) sensor using polymer nanoparticles for grain quality monitoring. Paper No. CSBE 100368. XVIIth World Congress of the International Commission of Agricultural and Biosystems Engineering (CIGR), Quebec City, PQ.

Emadi, T.A., C. Shafai, M.S. Freund, D.J. Thomson, D.S. Jayas and N.D.G. White. 2009. Development of a polymer-based gas sensor - humidity and CO_2 sensitivity. 2nd Microsystems and Nanoelectronics Research Conference, Ottawa, ON.

Senthilkumar*, T., D.S. Jayas, N.D.G. White, M.S. Freund, D.J. Thomson and C. Shafai. 2009. Automatic headspace sampler in identifying volatiles released by stored-grain insects - a preliminary study. CSBE Paper No. 09703. Can. Soc. Bio. Eng., Winnipeg, MB, 8 p.

Ramalingam*, G., S. Neethirajan*, D.S. Jayas and N.D.G. White. 2009. Characterization of the influence of moisture content on single wheat kernels using machine vision. CSBE Paper No. 09-708. Can. Soc. Bio. Eng., Winnipeg, MB, 14 p.

Gruwel, M.L.H., P.K. Ghosh*, P. Latta and D.S. Jayas. 2008. Pore-size information from porous biological materials using diffusion weighted imaging. Poster presentation at the 25th Annual Meeting of the European Society for Magnetic Resonance in Medicine and Biology (ESMRMB), Valencia, Spain, October 2-4.

Singh*, C.B., D.S. Jayas, J. Paliwal and N.D.G. White. 2008. Detection of insect damaged wheat kernels using near-infrared hyperspectral imaging. Paper No. RRV08-401. Am. Soc. Agric. Eng., St. Joseph, MI. 16 p.

Senthilkumar*, T., S. Neethirajan*, D.S. Jayas, N.D.G. White, M.S. Freund, D.J. Thomson and C. Shafai. 2008. Odour volatile analysis in stored grain: A review. Paper No.RRV08-402. Am. Soc. Agric. Eng., St. Joseph, MI.

Chelladurai*, V., D.S. Jayas and N.D.G. White. 2008. Detection of fungal infection in stored wheat using thermal imaging technique. Paper No. RRV08-404. Am. Soc. Agric. Eng., St. Joseph, MI. 11 p.

Vadivambal*, R., D.S. Jayas and N.D.G. White. 2008. Analysis of quality characteristics of microwave heated rye. Paper No. RRV08-405. Am. Soc. Agric. Eng., St. Joseph, MI. 11 p.

Mahesh*, S., D.S. Jayas, J. Paliwal and N.D.G. White. 2008. Near-infrared hyperspectral imaging for product quality determination in food and agricultural sectors - A review. Paper No. RRV08-406. Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Narvankar*, D.S., C.B. Singh*, D.S. Jayas and N.D.G. White. 2008. Assessment of soft X-ray imaging for detection of fungal infection in wheat. Paper No. RRV08-801. Am. Soc. Agric. Eng., St. Joseph, MI. 12 p.

Li, H., J. Paliwal, N.D.G. White and D.S. Jayas. 2008. Potential use of liquid nitrogen aeration for wheat disinfestations. Paper No. RRV08-802.Am. Soc. Agric. Eng., St. Joseph, MI.

Rajaramanna*, R., D.S. Jayas and N.D.G. White. 2008. Comparison of deterioration of rye under different storage regimes. CSBE Paper No. 08-113. Can. Soc. Bio. Eng., Winnipeg, MB, 15 p.

Vadivambal*, R., D.S. Jayas and N.D.G. White. 2008. Determination of mortality of life stages of *Tribolium castaneum* in rye using microwave energy. CSBE Paper No. 08-132. Can. Soc. Bio. Eng., Winnipeg, MB, 10 p.

Mahesh*, S., D.S. Jayas, J. Paliwal and N.D.G. White. 2008. Identification of western Canadian wheat classes at different moisture levels using near-infrared (NIR) hyperspectral imaging. CSBE Paper No. 08-196. Can. Soc. Bio. Eng., Winnipeg, MB, 9 p.

Singh*, C.B, D.S. Jayas, J. Paliwal and N.D.G. White. 2008. Detection of sprouted and midge-damaged wheat kernels using near-infrared hyperspectral. CSBE Paper No. 08-198. Can. Soc. Bio. Eng., Winnipeg, MB, 12 p.

Mahesh*, S., D.S. Jayas, J. Paliwal and N.D.G. White. 2008. Protein and oil contents determination in wheat using near-infrared (NIR) hyperspectral imaging. ASABE Paper No. 084895. Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 11 p.

Ghosh*, P.K., D.S. Jayas and M.L.H. Gruwel. 2008. Magnetic resonance imaging study of moisture movement during pigeon pea (*Cajanus cajan* L.) cooking. ASABE Paper No. 085097. Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 9 p.

Yuwei Q., K. Sun*, V. Spicer, W. Ens, D.S. Jayas and N.D.G. White. 2008. Developing a method for rapid detection of wheat insects using MALDI QqTOF mass spectrometry with HPLC. Abstract No. 1452. The 55th ASMS Conference on Mass Spectrometry.

Vadivambal*, R., D.S. Jayas, V. Chelladurai* and N.D.G. White. 2007. Temperature distribution studies in microwave-heated grains using a thermal camera. ASABE Paper No. RRV-07100 (an ASABE Section Meeting Presentation). Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 8 p.

Neethirajan*, S., T. Ono, E. Masayoshi, D. S. Jayas. 2007. Characterization of catalytic chemical vapour deposited SiCN thin film coatings. Trends in Nanotechnology, San Sebastian, Spain, September 03-07.

Vadivambal*, R., D.S. Jayas, N.D.G. White. 2007. Quantification of mortality of life stages of *Tribolium castaneum* in barley using microwave energy. Abstract for Poster presentation in The Science and Joy of Canadian Barley and Beer, Winnipeg, MB, June 25-29.

Ghosh*, P.K., D.S. Jayas, M.L.H. Gruwel and N.D.G. White. 2007. Measurement of water diffusivity in barley seed components using pulsed field gradient nuclear magnetic resonance imaging. Abstract for Poster presentation in The Science and Joy of Canadian Barley and Beer, Winnipeg, MB, June 25-29.

Ghosh*, P.K., D.S. Jayas, E.A. Smith, M.L.H. Gruwel, N.D.G. White and P.A. Zhilkin. 2007. Modeling of wheat drying using magnetic resonance imaging. Poster presented in 90th Canadian Chemistry Conference, Winnipeg, MB, May 26-30.

Mahesh*, S., A. Manickavasagan*, D.S. Jayas, J. Paliwal and N.D.G. White. 2007. Near-infrared hyperspectral imaging to differentiate wheat classes. Paper No. 072835. Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 10 p.

Neethirajan*, S. and D.S. Jayas. 2007. Sensors for grain storage. Paper No. 076179. Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 8 p.

Ghosh*, P.K., D.S. Jayas and Y.C. Agrawal. 2007. Enzymatic hydrolysis of oilseeds for enhanced oil extraction: current status. Paper No. 076207. Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 10 p.

Gayathri*, P. and D.S. Jayas. 2007. Mathematical modeling of airflow distribution in grain bulks B a review. Paper No. 076226. Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 12 p.

Vadivambal*, R., D.S. Jayas and N.D.G. White. 2007. Disinfestation of barley using microwave energy. Paper No. 076228. Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 14 p.

Singh*, C.B, D.S. Jayas, J. Paliwal and N.D.G. White. 2007. Fungal detection in wheat using near-infrared hyperspectral imaging. Paper No. 28. Joint meeting of North Central Branch of Entomological Society of America and Entomological Society of Manitoba, March 25-28, 2007, Winnipeg, MB.

Desai, S., A. Manickavasagan*, D.S. Jayas and R.W. Currie. 2007. Temperature changes in honey bees due to infestation by parasitic mites. Paper No. 34. Joint meeting of North Central Branch of Entomological Society of America and Entomological Society of Manitoba, March 25-28, 2007, Winnipeg, MB.

Neethirajan*, S., D.S. Jayas, N.D.G. White and H. Zhang*. 2007. Investigation of 3D geometry of cereal grain porous media using X-ray computed tomography images. Paper No. 38. Joint meeting of North Central Branch of Entomological Society of America and Entomological Society of Manitoba, March 25-28, 2007, Winnipeg, MB.

Manickavasagan*, A., S. Mahesh*, D.S. Jayas, J. Paliwal and N.D.G. White. 2007. NIR hyperspectral imaging to detect infestation by *Cryptolestes ferrugineus* inside wheat kernels. Paper No. 80. Joint meeting of North Central Branch of Entomological Society of America and Entomological Society of Manitoba, March 25-28, 2007, Winnipeg, MB.

Gayathri*, P., D.S. Jayas, J. Paliwal and N.D.G. White. 2007. Storage of high moisture grains. Paper No. 81. Joint meeting of North Central Branch of Entomological Society of America and Entomological Society of Manitoba, March 25-28, 2007, Winnipeg, MB.

Neethirajan*, S. and D.S. Jayas. 2006. Nanotechnology - an emerging technology for the agricultural and food industry. AIC Conference AInnovation for Growth - Trends and Successes Redefining Agriculture. Agric. Inst. Can., Ottawa, ON.

Manickavasagan*, A., S. Desai, D.S. Jayas and R.W. Currie. 2006. Thermal imaging to study thermoregulation of bees while infested by mites. CSBE Paper No. 06-184, Can. Soc. Bio. Eng., Winnipeg, MB.

Vadivambal*, R., D.S. Jayas and N.D.G. White. 2006. Disinfestation of life stages of *Tribolium castaneum* in wheat using microwave energy. CSBE Paper No. 06-120S, Can. Soc. Bio. Eng., Winnipeg, MB. 10 p.

Sathya*, G., D.S. Jayas and N.D.G. White. 2006. Effect of storage conditions on deterioration of rye and canola. CSBE Paper No. 06-121, Can. Soc. Bio. Eng., Winnipeg, MB. 9 p.

Neethirajan*, S. and D.S. Jayas. 2006. Network analysis of grain bulk pore structure using high resolution X-ray computed tomography images. CSBE Paper No. 06-122, Can. Soc. Bio. Eng., Winnipeg, MB. 17 p.

Karunakaran, C., D.S. Jayas and T. Crowe. 2006. Soft X-ray spectromicroscopy and its potential for biological applications. CSBE Paper No. 06-123, Can. Soc. Bio. Eng., Winnipeg, MB. 10 p.

Palanichamy*, A., D.S. Jayas and R.A. Holley. 2006. Review of microbial modeling techniques for meat industry. CSBE Paper No. 06-137, Can. Soc. Bio. Eng., Winnipeg, MB. 13 p.

Singh*, C.B., J. Paliwal, D.S. Jayas and N.D.G. White. 2006. Near-infrared spectroscopy: applications in the grain industry. CSBE Paper No. 06-189, Can. Soc. Bio. Eng., Winnipeg, MB. 12 p.

Neethirajan*, S., D.J. Thomson, D.S. Jayas and N.D.G. White. 2006. Characterising starch granule surfaces in durum wheat using atomic force microscopy. CSBE Paper No. 06-190, Can. Soc. Bio. Eng., Winnipeg, MB. 11 p.

Neethirajan*, S., D.S. Jayas and C. Karunakaran*. 2006. Dual energy X-ray image analysis for classifying vitreous kernels in durum wheat. ASABE Paper No. 063081, Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 8 p.

Tahir*, A.R., S. Neethirajan*, D.S. Jayas and J. Paliwal. 2006. Assessment of machine vision algorithm for quantification of foreign matter in wheat. ASABE Paper No. 063087, Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 7 p.

Palanichamy*, A., D.S. Jayas and R.A. Holley. 2006. Predicting survival of *Escherichia Coli* O157:H7 in dry fermented sausage using artificial neural networks. ASABE Paper No. 066020, Am. Soc. Agric. Biol. Eng., St. Joseph, MI. 12 p.

Sathya*, G., A. Manickavasagan* and D.S. Jayas. 2006. Determination of the proportion of contrasting class in CWRS wheat using machine vision. New Delhi, India: Indian Soc. Agric. Eng. 10 p.

Sathya*, G., D.S. Jayas and N.D.G. White. 2006. Factors influencing safe storage of cereal grains and oilseeds - an overview. New Delhi, India: Indian Soc. Agric. Eng. 9 p.

Desai, S., A. Manickavasagan*, D.S. Jayas and R. Currie. 2005. Temperature changes on honey bees due to infestation by varroa mite. Joint meeting of the Entomological Society of Canada and the Entomological Society of America, Canmore, AB.

Karunakaran* C. and D.S. Jayas. 2005. Nanotechnology B an emerging field in agriculture and food research. Paper No. 05-001. Can. Soc. Agric. Eng., Winnipeg, MB. 4 p.

Manickavasagan*, A., D.S. Jayas, N.D.G. White, and J. Paliwal. 2005. Applications of thermal imaging in agriculture B a review. 2005. Paper No. 05-002. Can. Soc. Agric. Eng., Winnipeg, MB. 11 p.

Neethirajan*, S., C. Karunakaran*, and D.S. Jayas. 2005. Biosensors B an emerging technology for the agricultural and food industry. Paper No. 05-003. Can. Soc. Agric. Eng., Winnipeg, MB. 8 p.

Zhang*, G., D.S. Jayas, J. Deng, and J. Halhead. 2005. Separating touching grain kernel in machine vision application with Hough transform and morphological transform. Paper No. 05-006 Can. Soc. Agric. Eng., Winnipeg, MB. 11 p.

Ghosh*, P.K., D.S. Jayas, M.L.H. Gruwel, and N.D.G. White. 2005. Magnetic resonance imaging studies to determine moisture removal pattern in wheat during drying. Paper No. 05-042 Can. Soc. Agric. Eng., Winnipeg, MB. 11 p.

Jian*, F., D.S. Jayas, and N.D.G. White. 2005. Diffusivity of rusty grain beetle in stored grain bulks. Paper No. 05-043. Can. Soc. Agric. Eng., Winnipeg, MB. 9 p.

Parker*, R., D.S. Jayas, and F. Jian. 2005. Effect of dropping height on segregation of different sized particles in stored wheat bulk. Paper No. 05-044. Can. Soc. Agric. Eng., Winnipeg, MB. 13 p.

Vadivambal*, R., D.S Jayas, and N.D.G. White. 2005. Possibilities of disinfestation of grain using microwave energy. Paper No. 05-045. Can. Soc. Agric. Eng., Winnipeg, MB. 11 p.

Govindarajan*, S.B., D.S. Jayas, N.D.G. White, and J. Paliwal. 2005. Dielectric properties measurement of bulk wheat samples using reflection and transmission techniques. Paper No. 05-047. Can. Soc. Agric. Eng., Winnipeg, MB. 13 p.

Ghosh*, P.K., D.S. Jayas, M.L.H. Gruwel and N.D.G. White. 2005. Non-destructive measurement of moisture pattern using MRI in a wheat kernel during drying. Paper No. 053122. Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Neethirajan*, S., C. Karunakaran*, D.S. Jayas, and N.D.G. White. 2005. Use of X-ray computed tomography to study the morphology of air paths inside grain bulks. Paper No. 053128. Am. Soc. Agric. Eng., St. Joseph, MI. 12 p.

Mohan*, A.L., C. Karunakaran*, D.S. Jayas and N.D.G. White. 2005. Illumination for object recognition of "Grainobot". Paper No. 053130. Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Karunakaran*, C., J. Paliwal, D.S. Jayas and N.D.G. White. 2005. Comparison of soft X-rays and NIR spectroscopy to detect insect infestations in grain. Paper No. 053139. Am. Soc. Agric. Eng., St. Joseph, MI. 11p.

Vadivambal*, R., D.S. Jayas and N.D.G. White. 2005. Wheat disinfestation using microwave energy. Paper No. 056033, Am. Soc. Agric. Eng., St. Joseph, MI. 8 p.

Manickavasagan*, A., D.S. Jayas and N.D.G. White. 2005. Thermal imaging to identify western Canadian wheat classes. Paper No. 056078. Am. Soc. Agric. Eng., St. Joseph, MI. 8 p.

Manickavasagan*, A., K. Thangavel and D.S. Jayas 2004. An overview of water consumption and effluent production in tapioca processing industry. Paper No. MB04-105, Am. Soc. Agric. Eng., St. Joseph, MI.

Wang, W., J. Paliwal and D.S. Jayas. 2004. Determination of ground whole grain kernel moisture content by near-infrared spectroscopy. Paper No. MB04-200, Am. Soc. Agric. Eng., St. Joseph, MI. 5 p.

Balasubramanian*, A., D.S. Jayas, N.D.G. White, W.G.D. Fernando and G. Li. 2004. Detection and identification of insect fragments in cleaned wheat flour by DNA fingerprinting using PCR. Paper No. MB04-201, Am. Soc. Agric. Eng., St. Joseph, MI.

Jian*, F., D.S. Jayas, N.D.G. White and E.A. Smith. 2004. Using Finite difference method to solve insect population dispersal model. Paper No. MB04-202, Am. Soc. Agric. Eng., St. Joseph, MI.

Neethirajan*, S., D.S. Jayas, C Karunakaran* and N.D.G. White. 2004. Is shape of grain a factor for airflow resistance difference in grain bulks? Paper No. MB04-203, Am. Soc. Agric. Eng., St. Joseph, MI.

Babu*, G.S., D.S. Jayas, N.D.G. White, J. Paliwal, and M.G. Scanlon. 2004. Dielectric properties of Grain. Paper No. MB04-205, Am. Soc. Agric. Eng., St. Joseph, MI.

Wang, W., J. Paliwal and D.S. Jayas. 2004. Separation and classification of touching grain kernels using morphological features. Paper No. MB04-204, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Gruwel, M.L.H., P. Latta, P.K. Ghosh* and D.S. Jayas. 2004. Moisture analysis using magnetic Resonance Microscopy Paper No. MB04-206, Am. Soc. Agric. Eng., St. Joseph, MI.

Karunakaran*, C. and D.S. Jayas. 2004. An on-line X-ray system for grain inspection - a future perspective. Paper No. 30-211A. CIGR International Conference, Beijing, China, October 11-14.

Koloor*, T.R., D.S. Jayas and N.D.G. White. 2004. Moisture sorption isotherms of buckwheat. Paper No. 20-006A. CIGR International Conference, Beijing, China, October 11-14.

Jian*, F., D.S. Jayas and N.D.G. White. 2004. An ecosystem model to simulate insect distribution in stored grain bins. Paper No. 047025. Am. Soc. Agric. Eng., St. Joseph, MI. 10 p

Parde*, S.R., D.S. Jayas and N.D.G. White. 2004. Movement of adult red flour beetles (Coleoptera: Tenebrionidae) in pockets of high moisture content wheat. Paper No. 047055. Am. Soc. Agric. Eng., St. Joseph, MI. 10 p

Mohan*, L.A., D.S. Jayas, N.D.G. White and C. Karunakaran*. 2004. Automation of unloading grain. Paper No. 043057. Am. Soc. Agric. Eng., St. Joseph, MI. 9 p

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2004. Mass determination of wheat kernels from X-ray images. Paper No. 043120. Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Neethirajan*, S., C. Karunakaran*, D.S. Jayas and N.D.G. White. 2004. X-ray CT image analysis to determine airflow path in grain bulks. Paper No. 043080. Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Ghosh*, P.K., D.S. Jayas, M.L.H. Gruwel and N.D.G. White. 2004. Magnetic resonance image analysis to explain moisture movement in wheat drying. Paper No. 043118. Am. Soc. Agric. Eng., St. Joseph, MI. 12 p.

Jian*, F., D.S. Jayas and N.D.G. White. 2004. Movement of adult *Cryptolestes ferrugineus* (Coleoptera: Cucujidae) in stored wheat in response to insect densities, temperature gradients and moisture differences. Presented at the XXIV International Congress of Entomology, Sydney, Australia, August 16-23.

Jian*, F., D.S. Jayas and N.D.G. White. 2004. Diffusion (motility) *Cryptolestes ferrugineus* (Coleoptera: Cucujidae) in stored wheat. Presented at the XXIV International Congress of Entomology, Sydney, Australia, August 16-23.

Jayas, D.S. and S. Duncan. 2003. Winnipeg's biotechnology/life sciences sector and nutraceutical industry. Cluster Conference, Montreal, PQ.

Visen*, N.S., Paliwal*, J., D.S. Jayas and N.D.G. White. 2003. Image analysis of bulk grain samples using neural networks. Paper No. 033055. Am. Soc. Agric. Eng., St. Joseph, MI. 8 p.

Paliwal, J., M.S. Borhan and D.S. Jayas. 2003. Classification of cereal grains using a flatbed scanner. Paper No. 036103. Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Jian*, F., D.S. Jayas and N.D.G. White. 2002. Computer modeling of insect movement and distribution. Paper No. 023020. Joint ASAE International Conference and CIGR XVth World Congress. Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Zhang*, G., D.S. Jayas, C. Karunakaran* and N.D.G. White. 2002. Separation of touching grain kernels in an image by ellipse-fitting algorithm. Paper No. 023129. Joint ASAE International Conference and CIGR XVth World Congress. Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Paliwal*, J., N.S. Visen*, D.S. Jayas and N.D.G. White. 2002. Quantification of variations in machine-vision-computed morphological features of cereal grains. Paper No. 02-3131. Joint ASAE International Conference and CIGR XVth World Congress. Am. Soc. Agric. Eng., St. Joseph, MI. 6 p.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2002. Soft X-ray inspection of wheat kernels infested by *Sitophilus oryzae*. Paper No. 023132. Joint ASAE International Conference and CIGR XVth World Congress. Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Visen*, N.S., J. Paliwal*, D.S. Jayas and N.D.G. White. 2002. Effect of gray level quantization on textural classification of cereals grains using machine vision. Paper No. 02-308, Masonville, PQ: CSAE/SCGR. 13 p.

Viswanathan*, R., R.B. Hulasare* and D.S. Jayas. 2001. Isotherm characteristics of shredded onion and sliced tomatoes. Paper No. FP-2001-III-15. Proceedings of XXXVI Annual Convention of the Indian Society of Agricultural Engineers, Satya Mansion, Ranjit Nagar, New Delhi, India.

Viswanathan*, R., R.B. Hulasare* and D.S. Jayas. 2001. Drying Characteristics of shredded onion (*Allium cepa*). Paper No. FP-2001-II-25. Proceedings of XXXVI Annual Convention of the Indian Society of Agricultural Engineers, Satya Mansion, Ranjit Nagar, New Delhi, India.

Karunakaran*, C., N.S. Visen*, J. Paliwal*, G. Zhang*, D.S. Jayas and N.D.G. White. 2001. Machine vision systems for agricultural products. Paper No. 01-305, Mansonville, PQ: CSAE/SCGR. 31 p.

Parde*, S.R., D.S. Jayas and N.D.G. White. 2001. Movement of rusty grain beetle (Coleoptera: cucujidae) in columns of wheat stored dry or with high moisture content. Paper No. 016020. Am. Soc. Agric. Eng., St. Joseph, MI. 15 p.

Jian*, F., D.S. Jayas and N.D.G. White. 2001. Modeling insect distribution in three dimensions in stored grain. Paper No. SD 01-123. Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Parde*, S.R., R.T. Kausal, D.S. Jayas and N.D.G. White. 2001. Mechanical damage to soybean seed during processing. Paper No. 016056. Am. Soc. Agric. Eng., St. Joseph, MI. 18 p.

Karunakaran*, C., D.S. Jayas and N.D.G. White. 2000. Detection of insect infestations in wheat kernels using soft X-rays. Paper No. AFL122. CSAE/SCGR (Can. Soc. Agric. Eng.), Mansonville, QC. 10 p.

Jian*, F., D.S. Jayas, N.D.G. White and W.E. Muir. 2000. Movement of adult rusty grain beetles, *Cryptolestes ferrugineus* (Coleoptera: Cucujidae), in response to 5EC/m temperature gradient at 5 to 17.5EC. Paper No. AFL107. CSAE/SCGR (Can. Soc. Agric. Eng.), Mansonville, QC. 15 p.

Visen*, N.S., J. Paliwal* and D.S. Jayas. 2000. Identification and segmentation of groups of touching kernels. Paper No. AFP220. CSAE/SCGR (Can. Soc. Agric. Eng.), Mansonville, QC. 14 p.

Zhang*, G., D.S. Jayas and N.D.G. White. 2000. Grain classification with combined texture model. Paper No. AFL111. CSAE/SCGR (Can. Soc. Agric. Eng.), Mansonville, QC. 10 p.

Zhang*, G., D.S. Jayas, N.D.G. White and J. Deng. 2000. Optimization of neural networks for grain classification. Paper No. AFL110. CSAE/SCGR (Can. Soc. Agric. Eng.), Mansonville, QC. 6 p.

Tewari*, G., D.S. Jayas, R.A. Holley and L.E. Jeremiah. 2000. Oxygen absorption kinetics of O_2 scavengers. Abstract No. 14A-31. Presented at IFT 2000 annual meeting in Dallas, June 10-14.

Tewari*, G., D.S. Jayas, L.E. Jeremiah and R.A. Holley. 2000. Display life of retail-ready, master-packaged beef steaks stored using O_2 scavengers in a liquid N_2 refrigerated container. Abstract No. 14A-32. Presented at IFT 2000 annual meeting in Dallas, June 10-14.

Tewari*, G., L.E. Jeremiah, D.S. Jayas and R.A. Holley. 2000. Development of retail packaging system for distribution of master-packaged fresh beef. Abstract No. 14A-33. Presented at IFT 2000 annual meeting in Dallas, June 10-14.

Tewari*, G., D.S. Jayas, L.E. Jeremiah and R.A. Holley. 2000. Prevention of transient discoloration of beef. Abstract No. 37-12. Presented at IFT 2000 annual meeting in Dallas, June 10-14.

Wasney*, M., L.E. Jeremiah, C.O. Gill, D.S. Jayas and R.A. Holley. 2000. Shelf-life of retail-ready pork chops stored in master packages under 100% CO_2 at -1.5°C. Abstract in Annual Report of Canadian Meat Research Institute, Quebec, PQ.

Jeyamkondan*, S., D.S. Jayas and R.A. Holley.1999. Design, fabrication, and testing of a nitrogen-refrigerated container for storage and distribution of master-packaged fresh red meats at -1.5°C. Presented at IFT 1999 annual meeting in Chicago, July 24-28.

Jeyamkondan*, S., D.S. Jayas and R.A. Holley. 1999. Neural networks for modelling microbial growth. Paper No. MBSK99-132, Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Mani, S., W.E. Muir, D.S. Jayas and N.D.G. White. 1999. Laboratory experiment of insect-induced hot spots in stored wheat. Paper No. MBSK99-118, Am. Soc. Agric. Eng., St. Joseph, MI. 7 p.

Zhang*, G., D. Jiang and D.S. Jayas. 1999. A field geographic information system. Paper No. MBSK99-105, Am. Soc. Agric. Eng., St. Joseph, MI. 7 p.

Tewari*, G. and D.S. Jayas. 1999. High pressure processing of foods: an overview. Paper No. 99-6033, Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Mani, S., W.E. Muir, D.S. Jayas, and N.D.G. White. 1998. Computer modelling of insect-induced hot spot development in stored grain. Paper No. SD98-104, Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Jeyamkondan*, S., D.S. Jayas and R.A. Holley. 1998. Pasteurization of foods by pulsed electric fields at high voltages. Paper No. SD98-122 Am. Soc. Agric. Eng., St. Joseph, MI. 17 p.

Jeyamkondan*, S., D.S. Jayas and R.A. Holley. 1998. Design of a jacketed container for storage and distribution of master-packaged meat at -1.5EC using liquid nitrogen. Paper No. SD98-123 Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Karunakaran, C., L.M. Toews, W.E. Muir, D.S. Jayas and N.D.G. White. 1998. Modelling allowable storage time of wheat using a respirometer. Paper No. SD98-124 Am. Soc. Agric. Eng., St. Joseph, MI. 8 p.

Yu*, L., G. Mazza and D.S. Jayas. 1998. Mass transfer phenomena during osmotic-air dehydration of cherries and blueberries. Paper No. 98-302, Can. Soc. Agric. Eng., Saskatoon, SK. 8 p.

Yu*, L., D.S. Jayas and G. Mazza. 1998. Finite element modeling of osmotic and air dehydration of cherries and blueberries. Paper No. 98-303, Can. Soc. Agric. Eng., Saskatoon, SK. 14 p.

White, N.D.G., R.B. Hulasare* and D.S. Jayas. 1998. Quality deterioration of hulless and hulled oats and barley during storage. Paper No. 98-6044, Am. Soc. Agric. Eng., St. Joseph, MI. 18 p.

Paliwal*, J., N.S. Visen* and D.S. Jayas. 1998. Determination of physical properties of different grain types using machine vision. Paper No. 98-3060, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Hulasare*, R.B., D.S. Jayas, W.E. Muir and N.D.G. White. 1998. Thin layer drying characteristics of hulless oats (*Avena sativa* L.). Paper No. 98-307, Can. Soc. Agric. Eng., Saskatoon, SK. 17 p.

Tewari*, G. and D. S. Jayas. 1997. Influence of particle-particle interaction on fluid-to-particle heat transfer coefficients (h_{fp}) during continuous tube flow. Paper no. 4560, Session: [72] [15z05] Physical Properties of Foods, Poster presented at the Conference of Food Engineering (CoFE'97), Los Angeles, CA.

Mann*, D.D., S. Waplak*, D.S. Jayas and N.D.G. White. 1997. Potential of controlled atmospheres for insect control in hopper cars. Paper No. RRV97-304, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Hulasare*, R.B., M. Habok*, D.S. Jayas, W.E. Muir and N.D.G. White. 1997. Sorption isotherms of hulless oats. Paper No. 97-6032, Am. Soc. Agric. Eng., St. Joseph, MI. 22 p.

Luo*, X.Y., D.S. Jayas and N.R. Bulley. 1997. Identification of damaged kernels in wheat using color machine vision system. Paper No. 97-3099, Am. Soc. Agric. Eng., St. Joseph, MI. 22 p.

Luo*, X.Y., D.S. Jayas and N.R. Bulley. 1997. Comparison of statistical and neural network methods for classification of cereal grains using machine vision. Paper No. 97-3106, Am. Soc. Agric. Eng., St. Joseph, MI. 16 p.

Majumdar*, S., D.S. Jayas and N.R. Bulley. 1997. Classification of cereal grains using machine vision, Part 1: Morphological features. Paper No. 97-3101, Am. Soc. Agric. Eng., St. Joseph, MI. 15 p.

Majumdar*, S., D.S. Jayas and N.R. Bulley. 1997. Classification of cereal grains using machine vision, Part 2: Color features. Paper No. 97-3100, Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Majumdar*, S., D.S. Jayas and N.R. Bulley. 1997. Classification of cereal grains using machine vision, Part 3: Textural features. Paper No. 97-3102, Am. Soc. Agric. Eng., St. Joseph, MI. 15 p.

Majumdar*, S., D.S. Jayas and N.R. Bulley. 1997. Classification of cereal grains using machine vision, Part 4: Color, textural, and morphological features. Paper No. 97-3104, Am. Soc. Agric. Eng., St. Joseph, MI. 14 p.

Majumdar*, S., D.S. Jayas and N.R. Bulley. 1997. Classification of bulk samples of cereal grains using machine vision. Paper No. 97-3105, Am. Soc. Agric. Eng., St. Joseph, MI. 22 p.

Mann*, D.D., D.S. Jayas, W.E. Muir and N.D.G. White. 1997. Conducting a successful CO_2 fumigation in a welded-steel hopper bin. Paper No. 97-6064, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Nair*, M., D.S. Jayas and N.R. Bulley. 1997. Dockage identification in wheat using machine vision. Paper No. 97-3043, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Paliwal*, J., D.S. Jayas, W.E. Muir and N.D.G. White. 1997. Effect of pneumatic conveying of wheat on mortality of insects. Paper No. 97-6087, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Lepper*, S., N.D.G. White and D.S. Jayas. 1996. Comparison of bulk characteristics of a hulless and two hulled cultivars of oats. Paper No. MANSASK 96-101, Am. Soc. Agric. Eng., St. Joseph, MI. 12 p.

Tewari*, G. and D.S. Jayas. 1996. Determination of fluid-to-particle heat transfer coefficients. Paper No. MANSASK 96-109, Am. Soc. Agric. Eng., St. Joseph, MI. 22 p.

Yu*, L., G. Mazza and D.S. Jayas. 1996. Osmotic dehydration of cherries. Presented at the 1996 Annual Conference of Can. Inst. Food Sci. Tech., Guelph, ON, August 18-21.

Luo*, X., D.S. Jayas, T.G. Crowe and N.R. Bulley. 1996. Evaluation of light sources for machine vision. Paper No. 96-600, Can. Soc. Agric. Eng., Saskatoon, SK. 9 p.

Shashidhar*, N.S., D.S. Jayas, T.G. Crowe* and N.R. Bulley. 1996. Extraction of morphological features by ellipse fitting. Paper No. 96-601, Can. Soc. Agric. Eng., Saskatoon, SK. 12 p.

Majumdar*, S., D.S. Jayas, S.J. Symons and N.R. Bulley. 1996. Textural features for automated grain identification. Paper No. 96-602, Can. Soc. Agric. Eng., Saskatoon, SK. 12 p.

Majumdar*, S., D.S. Jayas and N.R. Bulley. 1995. Enhancement of grain inspection using machine vision. Paper No. 95-3228, Am. Soc. Agric. Eng., St. Joseph, MI. 14 p.

Jayas, D.S., W.E. Muir, N.D.G. White and P.G. Fields. 1995. Nonchemical control of pests in stored-grain ecosystems: a summary of research in Manitoba. Paper No. 95-6128, Am. Soc. Agric. Eng., St. Joseph, MI. 11 p.

Tewari*, G., M. Kulshreshtha, D.S. Jayas and H.S. Bist. 1995. Computer simulation of grinding turmeric. Paper No. 95-6150, Am. Soc. Agric. Eng., St. Joseph, MI. 11 p.

Zhang*, Q., D.S. Jayas, M.G. Britton and J. Putnam. 1994. A model barn for teaching animal production environment courses. Paper No. 94-3593, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Shunmugam*, G., D.S. Jayas, N.D.G. White and W.E. Muir. 1994. Diffusion coefficient of carbon dioxide through barley bulks. Paper No. 94-6593, Am.. Soc. Agric. Eng., St. Joseph, MI. 11 p.

Ryniecki*, A., A. Molinska and D.S. Jayas. 1994. Stochastic modelling of grain moisture content in near-ambient drying. Paper No. 94-6594, Am.. Soc. Agric. Eng., St. Joseph, MI. 19 p.

Epp*, D.A., D.S. Jayas, W.E. Muir and D. St. George. 1994. Modification of a variable airflow control algorithm for near-ambient drying of wheat in a prairie climate. Paper No. MBSK 94-106, Am. Soc. Agric. Eng., St. Joseph, MI. 19 p.

Mann*, D.D., N.D.G. White, D.S. Jayas and W.E. Muir. 1994. Knowledge acquisition for expert systems: The process and associated problems. Paper No. MBSK 94-108, Am. Soc. Agric. Eng., St. Joseph, MI. 19 p.

Shatadal*, P., D.S. Jayas and N.R. Bulley. 1994. Machine vision based classification of seeds. Paper No. 94-301, Can. Soc. Agric. Eng., Saskatoon, SK. 9 p.

Bundus*, C.L., D.S. Jayas, W.E. Muir, N.D.G. White and D. Ruth. 1994. Average convective-pore velocity of carbon dioxide gas through grain bulks. Paper No. 94-314, Can. Soc. Agric. Eng., Saskatoon, SK. 21 p.

Shatadal*, P., D.S. Jayas and N.R. Bulley. 1994. Segmentation of connected cereal grain images. Paper No. 94-3022, Am. Soc. Agric. Eng., St. Joseph, MI. 28 p.

Weres*, J., D.S. Jayas and A. Ryniecki*. 1994. An inverse heat transfer method for the estimation of convective heat transfer coefficient for foods. Paper No. 94-3036, Am.. Soc. Agric. Eng., St. Joseph, MI. 11 p.

Majumdar*, S., D.S. Jayas, J.L. Hehn* and N.R. Bulley. 1994. Optical properties of various bulk grains. Paper No. 94-3045, Am. Soc. Agric. Eng., St. Joseph, MI. 11 p.

Shunmugam*, G., D.S. Jayas, N.D.G. White and W.E. Muir. 1994. Apparent diffusion coefficient of carbon dioxide through bulk wheat. Paper No. 94-6037, Am.. Soc. Agric. Eng., St. Joseph, MI. 12 p.

Alagusundaram*, K., D.S. Jayas, W.E. Muir and N.D.G. White. 1994. Convective-diffusive transport of carbon dioxide through stored grain bulks - a finite element model. Paper No. 94-6038, Am. Soc. Agric. Eng., St. Joseph, MI. 12 p.

Peck*, M.G., D.S. Jayas, W.E. Muir and N.D.G. White. 1994. Prediction of controlled atmosphere gas loss. Paper No. 94-6039, Am. Soc. Agric. Eng., St. Joseph, MI. 16 p.

Alagusundaram*, K., D.S. Jayas, W.E. Muir, N.D.G. White and R.N. Sinha. 1993. Distribution of introduced carbon dioxide in farm granaries: an experimental investigation. Paper No. 93-6019, Am. Soc. Agric. Eng., St. Joseph, MI. 20 p.

Hehn*, J.L., P. Shatadal*, D.S. Jayas and N.R. Bulley. 1993. Image processing with "KHOROS" - Application to grain grading. Paper No. 93-3030, Am. Soc. Agric. Eng., St. Joseph, MI. 12 p.

Ryniecki*, A. and D.S. Jayas. 1993. A computer program for control of canned food sterilization. Paper No. 93-3063, Am. Soc. Agric. Eng., St. Joseph, MI. 35 p.

Shatadal*, P., D.S. Jayas, J.L. Hehn* and N.R. Bulley. 1993. Classification and feature measurements on touching kernels of wheat and barley. Paper No. 93-3031, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Weres*, J. and D.S. Jayas. 1992. Thin-layer drying of corn: experimental validation of the mathematical model. Paper No. SD92-116. Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Bergen*, G.A., D.S. Jayas and N.D.G. White. 1992. Physical damage to peas and lentils due to free fall. Paper No. 92-304, Can. Soc. Agric. Eng., Saskatoon, SK. 10 p.

Irvine*, D.A., D.S. Jayas and G. Mazza. 1992. Computer controlled carbon dioxide, relative humidity and temperature monitoring system for potato storages. Paper No. 92-323, Can. Soc. Agric. Eng., Saskatoon, SK. 18 p.

Irvine*, D.A., D.S. Jayas and G. Mazza. 1992. Resistance to airflow through clean and soiled potatoes. Paper No. 92-325, Can. Soc. Agric. Eng., Saskatoon, SK. 10 p.

Jayas, D.S., K. Alagusundaram*, G. Shunmugam*, W.E. Muir and N.D.G. White. 1992. Simulation of temperatures in stored bulks of wheat using a three-dimensional finite element model. Paper No. 92-6527, Am. Soc. Agric. Eng., St. Joseph, MI. 21 p.

Mann*, D.D. and D.S. Jayas. 1992. Presentation of airflow resistance data of seed bulks. Paper No. 92-302, Can. Soc. Agric. Eng., Saskatoon, SK. 20 p.

Shatadal*, P., D.S. Jayas and N.R. Bulley. 1992. Separating contiguous wheat kernel image regions using mathematical morphology. Paper No. 92-3577, Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Alagusundaram*, K., D.S. Jayas, W.E. Muir, N.D.G. White and R.N. Sinha. 1991. A finite element model of three-dimensional CO_2 diffusion in grain bins. Paper No. 91-6558, Am. Soc. Agric. Eng., St. Joseph, MI. 14 p.

Alagusundaram*, K. D.S. Jayas, N.D.G. White and O.H. Friesen. 1991. Airflow patterns through wheat, barley and canola in bins with partially perforated floors - an experimental investigation. Paper No. 91-6561, Am. Soc. Agric. Eng., St. Joseph, MI. 12 p.

Jayas, D.S. and G. Mazza. 1991. Comparison of modified GAB equation with four other three-parameter equations for the description of sorption data of oats. Paper No. MNSK91-115, Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Ryniecki*, A., W.E. Muir and D.S. Jayas. 1991. Optimization on control systems for near-ambient wheat drying under maritime and continental climates. Paper No. 91-6551, Am. Soc. Agric. Eng., St. Joseph, MI. 17 p.

Smith*, E.A., D.S. Jayas, W.E. Muir, K. Alagusundaram* and V.H. Kalbande. 1991. Simulation of grain drying in bins with partially perforated floors, Part I: Isotraverse lines. Paper No. 91-6553, Am. Soc. Agric. Eng., St. Joseph, MI. 15 p.

Smith*, E.A., D.S. Jayas, W.E. Muir, K. Alagusundaram* and V.H. Kalbande. 1991. Simulation of grain drying in bins with partially perforated floors, Part II: Calculation of moisture content. Paper No. 91-6554, Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Alagusundaram*, K., D.S. Jayas, W.E. Muir and N.D.G. White. 1990. Thermal conductivity of barley, lentils and peas. Paper No. 90-6583, Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Alagusundaram*, K., D.S. Jayas, F. Chotard* and N.D.G. White. 1990. Airflow pressure drop relationships of some specialty seeds. Paper No. 90-6530, Am. Soc. Agric. Eng., St. Joseph, MI. 17 p.

Cenkowski, S., D.S. Jayas, J.K. Daun and P. Shatadal*. 1990. Chlorophyll contents of canola at different stages of maturity. Paper No. 90-409, Can. Soc. Agric. Eng., Saskatoon, SK. 11 p.

Cenkowski, S., D.S. Jayas and D. Hao. 1990. Latent heat of vaporization for main crops and selected foods. Paper No. 90-408, Can. Soc. Agric. Eng., Saskatoon, SK. 10 p.

Jayas, D.S., K. Alagusundaram* and D.A. Irvine*. 1990. Resistance to airflow through bulk flax seed as affected by the moisture content, direction of airflow and foreign material. Paper No. 90-404, Can. Soc. Agric. Eng., Saskatoon, SK. 12 p.

Jayas, D.S., N.D.G. White and M.G. Britton. 1990. Effect of oil used for dust control on engineering properties of stored wheat. Paper No. 90-6611, Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Mazza, G. and D.S. Jayas. 1990. Equilibrium moisture content - equilibrium relative humidity relationships of sunflower seeds, hulls and kernels. Paper No. 90-406, Can. Soc. Agric. Eng., Saskatoon, SK. 12 p.

Alagusundaram*, K., D.S. Jayas, O.H. Friesen and N.D.G. White. 1989. A model to predict three dimensional air pressure patterns in grain beds. Paper No. 89-4545, Am. Soc. Agric. Eng., St. Joseph, MI. 14 p.

Alagusundaram*, K., D.S. Jayas, N.D.G. White and W.E. Muir. 1989. Three-dimensional finite element heat transfer model of temperature distributions in grain storage bins. Paper No. 89-6115, Am. Soc. Agric. Eng., St. Joseph, MI. 18 p.

Irvine*, D.A., D.S. Jayas, M.G. Britton and N.D.G. White. 1989. Dynamic friction characteristics of seed bulks against vertical surfaces. Paper No. 89-4004, Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Jayas, D.S., G. Mazza and N.D.G. White. 1989. Equilibrium moisture content - equilibrium relative humidity relationship of flax seed. Paper No. 89-6603, Am. Soc. Agric. Eng., St. Joseph, MI. 16 p.

Jayas, D.S., G.E. Laliberte and K. Alagusundaram*. 1989. A finite element program for teaching axisymmetric field problems. Paper No. 89-7048, Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Rameshbabu*, M., D.S. Jayas and N.D.G. White. 1989. Design and fabrication of a controlled atmosphere unit for laboratory studies on control of stored product pests. Paper No. 89-6033, Am. Soc. Agric. Eng., St. Joseph, MI. 20 p.

Shatadal*, P., D.S. Jayas and N.D.G. White. 1989. Thin-layer rewetting characteristics of canola. Paper No. 89-6099, Am. Soc. Agric. Eng., St. Joseph, MI. 14 p.

Alagusundaram*, K., D.S. Jayas, N.D.G. White and W.E. Muir. 1988. Three dimensional heat transfer model of temperature distribution in grain storage bins. Paper No. NCR 88-602, Am. Soc. Agric. Eng., St. Joseph, MI. 16 p.

Bulley, N.R., M.G. Britton and D.S. Jayas. 1988. Food process engineering undergraduate education. Can. Soc. Agric. Eng., Saskatoon, SK. 10 p.

Jayas, D.S., S. Cenkowski and W.E. Muir. 1988. A discussion of the thin-layer drying equation. Paper No. 88-6557, Am. Soc. Agric. Eng., St. Joseph, MI. 7 p.

Jayas, D.S. and W.E. Muir. 1988. Presenting airflow-pressure drop data for modelling airflow in anisotropic bulks. Paper No. 88-6031, Am. Soc. Agric. Eng., St. Joseph, MI. 7 p.

Jayas, D.S., W.E. Muir and N.D.G. White. 1988. Modelling the diffusion of carbon dioxide in stored grain. Paper No. 88-6013, Am. Soc. Agric. Eng., St. Joseph, MI. 12 p.

Jayas, D.S. 1988. Resistance to airflow through granular products: a review. Paper No. 88-6534, Am. Soc. Agric. Eng., St. Joseph, MI. 19 p.

Shatadal*, P., D.S. Jayas and B.C. Sarkar. 1988. Equilibrium moisture - equilibrium relative humidity relationships of oiled and deoiled rice bran pellets. Paper No. NCR 88-505, Am. Soc. Agric. Eng., St. Joseph, MI. 10 p.

Sokhansanj, S., D.S. Jayas and A. Falacinski. 1988. Resistance of bulk lentils to airflow. Paper No. 88-6535, Am. Soc. Agric. Eng., St. Joseph, MI. 23 p.

Falacinski, A., S. Sokhansanj, F.W. Sosulski, S. Cenkowski and D.S. Jayas. 1987. Resistance of bulk lentil seeds to airflow. Paper No. NCR 87-101, Am. Soc. Agric. Eng., St. Joseph, MI. 19 p.

Ghadge, A.D., M.G. Britton and D.S. Jayas. 1987. Moisture content determination for potatoes. Paper No. NCR 87-501, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Jayas, D.S. and S. Sokhansanj. 1987. Design data on resistance of airflow through canola (rapeseed). Paper No. NCR 87-102, Am. Soc. Agric. Eng., St. Joseph, MI. 5 p.

Jayas, D.S., S. Sokhansanj and E.B. Moysey. 1987. Predicting pressure patterns in canola bins. Paper No. 87-402, Can. Soc. Agric. Eng., Saskatoon, SK. 14 p.

Jayas, D.S. and D. Griffin*. 1987. Transient method for determination of thermal conductivity or film conductance of foods. Paper No. 87-506, Can. Soc. Agric. Eng., Saskatoon, SK. 7 p.

Jayas, D.S., D.A. Kukelko* and N.D.G. White. 1987. Equilibrium moisture-equilibrium relative humidity relationship for canola meal. Paper No. 87-6534, Am. Soc. Agric. Eng., St. Joseph, MI. 11 p.

Jayas, D.S., S. Sokhansanj and N.D.G. White. 1987. Bulk density and porosity of canola. Paper No. 87-6535, Am. Soc. Agric. Eng., St. Joseph, MI. 11 p.

Muir, W.E., D.S. Jayas, M.G. Britton, R.N. Sinha, and N.D.G. White. 1987. Interdisciplinary grain storage research at the University of Manitoba. Paper No. 87-6544, Am. Soc. Agric. Eng., St. Joseph, MI. 48 p.

Sokhansanj, S., S. Cenkowski and D.S. Jayas. 1987. Equipment and methods of thin-layer drying - a review. Paper No. 87-6556, Am. Soc. Agric. Eng., St. Joseph, MI. 23 p.

Jayas, D.S. and S. Sokhansanj. 1986. Effect of foreign material on resistance to airflow of canola. Paper No. 86-6572, Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Jayas, D.S., S. Sokhansanj, E.B. Moysey and E.M. Barber. 1986. Distribution of foreign materials in canola bins. Paper No. 86-406, Can. Soc. Agric. Eng., Saskatoon, SK. 16 p.

Jayas, D.S., S. Sokhansanj, E.B. Moysey and E.M. Barber. 1986. Resistance to airflow of canola as affected by direction of airflow. Paper No. 86-409, Can. Soc. Agric. Eng., Saskatoon, SK. 10 p.

Jayas, D.S. and S. Sokhansanj. 1986. Thin-layer drying of barley at low temperatures. ASAE Paper No. 86-6514, Am. Soc. Agric. Eng., St. Joseph, MI. 7 p.

Kukelko*, D.A., D.S. Jayas, N.D.G. White and M.G. Britton. 1986. Physical properties of canola (rapeseed) meal. Paper No. NCR 86-602, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Jayas, D.S. and S. Sokhansanj. 1985. Resistance to airflow of rapeseed (canola). Paper No. 85-3516, Am. Soc. Agric. Eng., St. Joseph, MI. 15 p.

Sokhansanj, S., W. Zhijie, D.S. Jayas and T. Kameoka. 1985. Equilibrium moisture of rapeseed (canola) at temperatures from 5EC to 25EC. Paper No. 85-3512, Am. Soc. Agric. Eng., St. Joseph, MI. 9 p.

Singh (Jayas), D. and E.B. Moysey. 1984. Theories of bin wall pressures. Paper No. 84-411, Can. Soc. Agric. Eng., Saskatoon, SK. 19 p.

Singh (Jayas), D., W.E. Muir and R.N. Sinha. 1984. Transient method for diffusion coefficient of carbon dioxide through wheat bulks. Paper No. 84-201, Can. Soc. Agric. Eng., Saskatoon, SK. 17 p.

Singh (Jayas), D. and S. Sokhansanj. 1984. Resistance to airflow of rapeseed (canola). Paper No. 84-3530, Am. Soc. Agric. Eng., St. Joseph, MI. 28 p.

Singh (Jayas), D., S. Sokhansanj and D. Bergh. 1984. Effect of maturity and harvest method on drying rate of wheat. Paper No. 84-207, Can. Soc. Agric. Eng., Saskatoon, SK. 10 p.

Sokhansanj, S., S.L. Sturton and D. Singh (Jayas). 1984. Comparative studies on thin layer drying equipment. Paper No. 84-3527, Am. Soc. Agric. Eng., St. Joseph, MI. 14 p.

Singh (Jayas), D., S. Sokhansanj and B. Middleton. 1983. Drying characteristics of wheat, barley and canola at low temperatures. Paper No. NCR83-207, Am. Soc. Agric. Eng., St. Joseph, MI. 20 p.

Sokhansanj, S., D. Singh (Jayas) and P. Gebhardt. 1983. Natural grain drying simulation/ animation on minicomputers. Paper No. 83-204, Can. Soc. Agric. Eng., Saskatoon, SK. 12 p.

Sokhansanj, S., J.D. Wassermann and D. Singh (Jayas). 1982. Development of empirical drying models with experimental in-field and controlled drying experiments. Paper No. 82-3512, Am. Soc. Agric. Eng., St. Joseph, MI. 16 p.

Singh (Jayas), D., W.E. Muir and R.N. Sinha. 1981. Finite element modelling of carbon dioxide in stored wheat. Paper No. NCR 81-019, Am. Soc. Agric. Eng., St. Joseph, MI. 13 p.

Reports

Jayas, D.S., N.D.G. White, N. Udayakumar*, V.R. Parker* and V. Chelladurai*. 2010. Mycotoxin development in stored durum wheat. Project 07-831. Final report submitted in December 2010 to the Agri-Food Research and Development Initiative, Morris, MB. 52 p.

Alagusundaram*, K., D.S. Jayas, N.D.G. White and W.E. Muir. 1990. Prediction of three-dimensional heat transfer in bulks of grain for optimal product management. Pp. 30-31. In: Research Update - 1990, D.E. Harder (ed.), Agriculture Canada Research Station, Winnipeg, MB.

Jayas, D.S. and N.D.G. White. 1990. Engineering properties and spoilage susceptibility of canola meal. Pp. 342-352. In: 9th Project Report, Research on Canola Seed Oil and Meal, Canola Council of Canada, Winnipeg, MB. 21 p.

White, N.D.G. and D.S. Jayas. 1990. Safe storage conditions for flaxseed and potential for insect infestations. Pp. 34-35. In: Research Update - 1990, D.E. Harder (ed.), Agriculture Canada Research Station, Winnipeg, MB.

White, N.D.G. and D.S. Jayas. 1989. Carbon dioxide for control of stored grain insects. Pp. 4-5. In: Research Update - 1989, T.G. Atkinson (ed.), Agriculture Canada Research Station, Winnipeg, MB.

White, N.D.G. and D.S. Jayas. 1988. Safe storage conditions and potential pest problems for canola meal. Pp. 55-57. In: Research Update - 1988, T.G. Atkinson (ed.), Agriculture Canada Research Station, Winnipeg, MB.

Jayas, D.S. and N.D.G. White. 1987. Engineering properties and storage susceptibility of canola meal. Progress report submitted in September 1987 to the Canola Council of Canada, Winnipeg, MB. 5 p.

Jayas, D.S. and N.D.G. White. 1986. Engineering properties and spoilage susceptibility of canola meal. Progress report submitted in September 1986 to the Canola Council of Canada, Winnipeg, MB. 5 p.

Sturton, S.L., D. Singh (Jayas), S. Sokhansanj and F.W. Sosulski. 1984. Natural drying of canola. Progress report submitted in December 1984 to the Canola Council of Canada, Winnipeg, MB. 52 p.

COURSES TAUGHT

25.486 Engineering Design (Supervision of projects)
34.040 Dairy Engineering
34.211 Transport Phenomena
34.319 Food Engineering Fundamentals I
34.327 Instrumentation and Measurement for Biosystems (formerly 34.321 Instrumentation and Measurement for Agriculture
34.353 Engineering Fundamentals
34.354 Food Engineering Fundamentals
34.355 Biosystems Engineering Work Study I
34.424 Graduation Project
34.434 Animal Production Environment
34.440 Unit Operations II
34.455 Biosystems Engineering Work Study II
34.708 Seminar
34.718 Advanced Agricultural Engineering Seminar
BIOE7210 Numerical Modelling of Biosystems (50% of the lectures) (formerly 34.721 Numerical Modelling of Biosystems)
BIOE7240 Special Problems in Biosystems Engineering (formerly 34.724 Special Problems in Biosystems Engineering or 34.706 Special Problems in Agricultural Engineering)
BIOE7260 Research Methods for Biosystems Engineers (formerly 34.726 Research Methods for Biosystems Engineers or 34.717 Research Methods for Agricultural Engineers)
BIOE7280 Advanced Topics in Biosystems Engineering (formerly 34.728 Advanced Topics in Biosystems Engineering or 34.719 Advanced Topics in Agricultural Engineering)

SUPERVISION OF POSTDOCTORAL FELLOWS (20)

2016-18	Senthilkumar, T.	Postdoctoral Fellow
2016-18	Chelladurai, V.	Postdoctoral Fellow
2012-14	Vadivambal, R.	Postdoctoral Fellow
2009-11	Singh, C.B.	Postdoctoral Fellow
2009-10	Mishra, S.	Postdoctoral Fellow
2009-10	Neethirajan, S.	Postdoctoral Fellow
2009-10	Vadivambal, R.	Postdoctoral Fellow
2007-08	Ghosh, P.	Postdoctoral Fellow
2006-08	Choudhary, R.	Postdoctoral Fellow (co-supervised with Dr. Paliwal)
2006-07	Zhang, H.	Postdoctoral Fellow (co-supervised with Dr. Paliwal)
2005-06	Tahir, A.R.	Postdoctoral Fellow
2003-06	Jian, F.	Postdoctoral Fellow
2003-04	Karunakaran, C.	Postdoctoral Fellow
1996-98	Shashidhar, S.	Postdoctoral Fellow
1996-97	Xu, S.	Postdoctoral Fellow
1995-96	Crowe, Trever	Postdoctoral Fellow
1995-96	Cofie-Agblor, R.	Postdoctoral Fellow (co-supervised with Dr. W.E. Muir)
1994	Shatadal, P.	Postdoctoral Fellow
1994	Alagusundaram, K.	Postdoctoral Fellow
1990-92	Ryniecki, A.	Postdoctoral Fellow

POSTGRADUATE THESES SUPERVISED

Doctoral Theses (26)

2016	Ph.D.	Chelladurai, V.	Feasibility of storing canola in silo bags (harvest bags)
2016	Ph.D.	Senthilkumar, T.	Detection of fungal infections of different durations in canola, wheat, and barley and different concentrations of ochratoxin A contamination in wheat and barley using near-infrared (NIR) hyperspectral imaging
2016	Ph.D.	Ravikanth, L.	Determination of physical contaminants in wheat using hyperspectral imaging
2014	Ph.D.	Moses, J.A.	Simulation and validation of three-dimensional airflow pressure patterns in grain beds (Indian Institute of Crop Processing Technology (IICPT), Thanjavur, India)
2014	Ph.D.	Sun, K.	Storage properties of high oil content bulk canola and their effects on canola storage
2013	Ph.D.	Amudhasurabi, A.	A study on dynamics of grain handling systems in Canada and India with specific reference to policy impacts (IICPT)
2012	PhD	Mohan, A.L.	Automation of unloading grain cars using "Grain-o-bot"
2011	Ph.D.	Mahesh, S.	Long wavelength near-infrared hyperspectral imaging for classification and quality assessment of bulk samples of wheat from different growing locations and crop years (co-supervised with Dr. J. Paliwal)
2009	Ph.D.	Neethirajan, S.	Development of a carbon dioxide (CO2) sensor for agri-food industry (CIGR Armand Blanc Award, CSAE-SCGR Ph.D. thesis award, NSERC Innovation Challenge Award - Honourable Mention)
2009	Ph.D.	Singh, C.B.	Detection of insect and fungal damage and incidence of sprouting in stored wheat using near infrared hyper spectral and digital colour imaging (co-supervised with Dr. J. Paliwal)
2009	Ph.D.	Vadivambal, R.	Disinfestation of stored-grain insects using microwave energy
2007	Ph.D.	Ghosh, P.	Mathematical modeling of wheat drying with input from moisture movement studies using magnetic resonance imaging
2007	Ph.D.	Manickavasagan A.	Thermal imaging for potential use in cereals and oilseeds handling
2004	Ph.D.	Zhang, G.	Separation of touching grain kernels in an image by ellipse fitting and morphological transform algorithm
2003	Ph.D.	Jian, F.	Computer modelling of temperature and *Cryptolestes ferrugineus (Coleoptera: Laemophloeidae) adult distribution* in grain bins (Governor General Medal for outstanding achievement, CSAE-SCGR Ph.D. thesis award)
2002	Ph.D.	Visen, N.S.	Machine vision based grain handling system
2002	Ph.D.	Karunakaran, C.	Soft x-ray inspection of wheat kernels to detect infestation by stored-grain insects (University of Manitoba Distinguished Dissertation Award and CSAE-SCGR Ph.D. Thesis Award)

2002	Ph.D.	Paliwal, J.	Digital image analysis of grain samples for potential use in grain cleaning (CSAE-SCGR Ph.D. Thesis Award)
2002	Ph.D.	Hulasare, R.	Effect of suboptimal temperatures, low carbon dioxide concentrations, and relative humidities on intraspecific and interspecific interactions of *Cryptolestes ferrugineus* (Stephens) and *Tribolium castaneum* (Herbst)
2000	Ph.D.	Tewari, G.	Centralized packaging of retail meat cuts
1999	Ph.D.	Shunmugam, G.	Apparent diffusion coefficients of carbon dioxide through grain bulks
1998	Ph.D.	Mann, D.D.	Fumigation of stored grain with carbon dioxide (CSAE-SCGR Graduate Thesis Award)
1997	Ph.D.	Luo, X.Y.	Color image analysis for cereal grain classification
1997	Ph.D.	Majumdar, M.	Classification of cereal grains using machine vision
1994	Ph.D.	Shatadal, P.	Image analysis for software-separation and classification of touching grains
1993	Ph.D.	Alagusundaram, K.	Movement of CO_2 gas, introduced as solid formulation, through stored wheat bulks

Masters Theses (54)

2018	M.Sc.	Narendran, R.B.	Segregation of canola, kidney bean and soybean in wheat during bin loading (co-supervised with Dr. F. Jian)
2015	M.Sc.	Karuppiah, K.	Detection of fungal infection in pulses using near infrared (NIR) hyperspectral imaging
2014	M.Tech.	Arlene-Christina, G.D.	Studies on effect of extreme temperatures for controlling of *Cryptolestes ferrugineus* (Stephens) (Coleoptera: Laemophloeidae) life stages in wheat (IICPT)
2014	M.Tech.	Narendran, R.B.	Development of an experimental grain dryer to compare the effect of airflow direction on temperature and moisture distribution (IICPT)
2013	M.Tech.	Chidananda, K.P.	Respiration of pulses stored under different storage conditions (IICPT)
2013	M.Tech.	Divekar, M.T.	Effect of microwave pre-treatment on the microstructure and cooking quality of pulses using Fourier transform infrared (FTIR) microspectroscopy (IICPT)
2012	M.Tech.	Kaliramesh, S.	Determination of main constituents and detection of infestation by *Callosobruchus maculatus* in green gram using near-infrared hyperspectral imaging (IICPT)
2012	M.Tech.	Rani, P.R.	Safe storage guidelines for pinto beans (IICPT)
2012	M.Tech.	Purohit, P.	Microwave treatment of mung bean for reducing the cooking time and disinfesting the infestation by cowpea weevil (IICPT)
2011	M.Tech.	Ravikanth, L.	Measurement of thermal properties and physical dimensions of pulses (IICPT)
2011	M.Tech.	Sravanthi, B.	Developing safe storage guidelines for red lentils (IICPT)
2011	M.Tech.	Antony, T.A.M.	Thermal imaging technique for detection of infestation by *Callosobruchus maculates* in green gram (IICPT)
2011	M.Sc.	Parker, V.R.	Potential of development of mycotoxins in stored durum wheat under near-ambient drying conditions in western Canada
2011	M.Sc.	Zhang, W.	Influence of growing location, sample presentation technique and amount of foreign material on features

			extracted from colour images of Canada western red spring wheat
2010	M.Sc.	Hossain, M.E.	Fabrication and optimization of a sensor array for incipient grain spoilage monitoring (co-supervised with Dr. M.S. Freund)
2010	M.Sc.	Senthilkumar, T.	Characterization of volatile organic compounds released by stored grain insects
2010	M.Sc.	Ramalingam, G.	Characterization of influence of moisture content on morphological features of single wheat kernels using machine vision system
2008	M.Sc.	Narvankar, D.S.	Assessment of soft X-rays for detection of fungal infection in stored wheat
2008	M.Sc.	Ramachandran, R.	Comparison of deterioration of rye samples stored at different storage regimes
2008	M.Sc.	Chelladurai, V.	Identification of fungal infection in wheat using thermal imaging technique
2008	M.Eng.	Balaji, S.	Design of a thermal disinfestation system for insects in bulk grains
2008	M.Sc.	Sun, K.	Protein fingerprinting technology for detecting stored-product insect fragments in wheat flour
2008	M.Sc.	Wang, F.	Synergistic effect of carbon monoxide mixed with carbon dioxide in air on mortality of stored-grain insects
2008	M.Sc.	Wu, J.	Feasibility of the application of the electronic nose technology to monitoring insect infestation in wheat (co-supervised with Dr. Q. Zhang)
2008	M.Sc.	Udayakumar, N.	Safe storage guidelines for durum wheat
2007	M.Sc.	Mahesh, S	Determination of main constituents in wheat using near infrared hyperspectral imaging (co-supervised with Dr. J. Paliwal)
2006	M.Sc.	Palanichamy, A.	Comparing artificial neural network and statistical methods for estimating the survival of Escherichia coli O157:H7 in dry fermented sausage (co-supervised with Dr. R.A. Holley)
2006	M.Sc.	Gunasekran, S.	Safe storage guidelines for rye and canola
2005	M.Sc.	Balasubramanian A.	Sensitivity analysis of DNA fingerprinting technique for detecting insect fragments in wheat flour
2005	M.Sc.	Vadivambal, R.	Wheat disinfestation using microwave energy
2005	M.Sc.	Govindarajan, S.	Assessment of reflection and transmission techniques for determining dielectric properties of bulk wheat samples
2005	M.Sc.	Neethirajan, S.	X-ray CT image analysis to explain the airflow resistance difference in grain bulks
2005	M.Eng.	Fan, L.	Strategic planning for the Southeast grain distribution and handling system in China
2002	M.Sc.	Mohan, A.L.	Classification of bulk grains using their reflectance characteristics
2001	M.Sc.	Parde, S.	Movement of *Cryptolestes ferrugineus* (Coleoptera: cucujidae) in grain columns containing pockets of high moisture content wheat and carbon dioxide gradients
1999	M.Sc.	Habok, M.N.N.	Modification and testing of a nitrogen refrigerated, controlled atmosphere container for the distribution of fresh red meat

1999	M.Sc.	Jeyamkondan, S.	Design and evaluation of a portable, nitrogen-refrigerated, jacketed container for storage and distribution of chilled meat
1998	M.Sc.	Meszaros, S.	Determination of effective leakage area in model grain bins
1998	M.Sc.	Yu, Liping	Osmotic-air dehydration of cherries and blueberries
1997	M.Sc.	Bailey, C.G.	Design, fabrication, and testing of a returnable, insulated, nitrogen-refrigerated, controlled-atmosphere shipping container for distribution of fresh red meat (CSAE Graduate Thesis Award)
1997	M.Sc.	Eu, M.T.	Reflectance characteristics of bulk grains using a spectrophotometer
1997	M.Sc.	Hulasare, R.	Drying characteristics and moisture isotherms of hulless oats (*Avena sativa* L.)
1997	M.Sc.	Irvine, D.A.	Control of temperature, relative humidity and carbon dioxide for reduced ventilation in commercial potato storages
1997	M.Sc.	Lukasiewicz, M.	Leakage of carbon dioxide from portions of wall of a typical bolted-metal bin
1997	M.Sc.	Nair, M.	Dockage identification in wheat using machine vision
1997	M.Sc.	Paliwal, J.	Effect of pneumatic conveyance of wheat on the mortality of stored-grain insects
1996	M.Sc.	Epp, D.A.	Evaluation of a multi-stage airflow control-algorithm for near-ambient drying of wheat in Manitoba
1996	M.Sc.	Tewari, G.	Determination of fluid-to-particle heat transfer coefficients in experimental aseptic processing systems
1995	M.Sc.	Mann, D.D.	Development of a grain storage system for Canadian farmers and grain storage managers (CSAE Graduate Thesis Award)
1994	M.Sc.	Peck, M.G.	Prediction of gas loss from bolted-metal bins caused by changing environmental conditions
1994	M.Sc.	Bundus, C.L.	Average convective-pore velocity of carbon dioxide gas through grain bulks
1989	M.Sc.	Alagusundaram, K.	Three dimensional finite element heat transfer model of temperature distribution in grain storage bins
1989	M.Sc.	Rameshbabu, M.	Design and fabrication of a controlled atmosphere unit for studies on the mortality of adult and eggs of rusty grain beetles
1989	M.Sc.	Shatadal, P.	Thin-layer rewetting rates of canola (*Brassica campestris* L.)

POSTGRADUATE STUDENTS CURRENTLY SUPERVISED

PhD	Tripathi, R.	
PhD	Bharathi, V.	
MSc	Thangarasu A.	
MSc	Lavanya, G.	Co-supervised with Dr. P.G. Fields
MSc	Vignesh, R.	Co-supervised with Dr. F. Jian
MSc	Patil, M.	Co-supervised with Dr. F. Jian
MSc	Salarikia, A.	Co-supervised with Dr. F. Jian

POSTGRADUATE STUDENTS COMMITTEES

2019	PhD	External Examiner	National Institute of Food Technology Entrepreneurship and Management, Kundli, India
2018	PhD	External Examiner	Electronics Engineering, Sathyabama University, Chennai, India
2013-15	M.Sc.	Changhee Choi	Economics of grain storage
2013	Ph.D.	External Examiner	Electronics Engineering, Sathyabama University, Chennai, India
2013	Ph.D.	External Examiner	Chemical and Biological Engineering, University of British Columbia
2011	Ph.D.	External Examiner	Indian Institute of Technology, Kharagpur, India
2010	Ph.D.	External Examiner	Indian Institute of Technology, Kharagpur, India
2008	Ph.D.	External Examiner	Food Science and Agricultural Chemistry, McGill University
2007-09	Ph.D.	Krhan, T.	Architecture
2006-08	M.Sc.	Li, H.Y.	Biosystems Engineering
2007	Ph.D.	External Examiner	Andhra University, Visakhapatnam, India
2006	Ph.D.	External Examiner	University of Saskatchewan
2004-08	M.Sc.	Graumann, G.	Food Science
2004	Ph.D.	External Examiner	Anna University, Chennai, India
2004-06	M.Sc.	Ho, C.	Food Science
2003-05	M.Sc.	Wang, W.	Biosystems Engineering
2004-05	M.Sc.	Upadhye, P.	Mechanical Engineering
2002-06	Ph.D.	Parthiban, M.	Food Science
2003	Ph.D.	External Examiner	Food Science and Agricultural Chemistry, McGill University
2002	Ph.D.	External Examiner	School of the Built Environment, Victoria University of Technology, Melbourne City, Australia
2001	Ph.D.	External Examiner	Agricultural and Biosystems Engineering, McGill University
2001	Ph.D.	External Examiner	Agricultural and Biosystems Engineering, McGill University
2001	Ph.D.	Bartley, J.	Mechanical and Industrial Engineering
2001	M.Sc.	Eduardo C.	Food Science
2000	M.Sc.	Wasney, M.	Food Science
2000	M.Sc.	Tang, P.	Biosystems Engineering
1999	Ph.D.	External Examiner	Agricultural and Biosystems Engineering, McGill University
1999	M.Sc.	Seshadri, M.	Biosystems Engineering
1999	M.Sc.	Karunakaran, C.	Biosystems Engineering
1997	Ph.D.	External Examiner	Zoology, Utkal University, Bhubaneswar, India
1997	M.Sc.	Schroth, E.	Biosystems Engineering
1997	M.Sc.	External Examiner	Agricultural and Biosystems Engineering, McGill University
1996	Ph.D.	External Examiner	Agricultural and Bioresource Engineering, University of Saskatchewan
1995	Ph.D.	External Examiner	Agricultural, Food and Nutritional Science, University of Alberta
1995	Ph.D.	Dick, K.J.	Civil and Geological Engineering (Chair, Oral Examination)

1994	M.Sc.	Pontikakis, N.	Mechanical Engineering
1994	Ph.D.	Sinicio, R.	Agricultural Engineering
1994	Ph.D.	External Examiner	Agricultural Engineering, McGill University
1994	Ph.D.	External Examiner	Agricultural Engineering, Indian Institute of Technology, Kharagpur, India
1994	Ph.D.	External Examiner	Agricultural Engineering, McGill University
1994	Ph.D.	External Examiner	Entomology, Loyola College, Madras University, India
1993	Ph.D.	Chaisin, C.	Mechanical Engineering
1993	Ph.D.	External Examiner	Food Engineering, University of Guelph
1992	M.Sc.	Blicq, D.	Food Science
1992	M.Sc.	Dougan, K.	Agricultural Engineering
1992	M.Sc.	Heise, R.	Food Science
1992	Ph.D.	External Examiner	Agricultural Engineering, University of Saskatchewan
1991	M.Sc.	Bielewicz, J.	Agricultural Engineering
1991	M.Sc.	Tishinski, T.	Food Science
1991	Ph.D.	External Examiner	Agricultural Engineering, McGill University
1990	M.Sc.	Davidson, J.	Civil Engineering
1988	M.Sc.	Ghadge, A.	Agricultural Engineering
1987	M.Sc.	Pokrant, D.G.	Agricultural Engineering
1987	M.Sc.	Paryniuk, M.	Food Science
1987	M.Sc.	External Examiner	Agricultural Engineering, McGill University
1986	M.Sc.	Austen, D.	Mechanical Engineering
1986	M.Sc.	Sanderson, D.B.	Agricultural Engineering

UNDERGRADUATE THESES SUPERVISED (27)

2005	B.Sc.	Parker, V.R.	Effect of dropping height on segregation of different sized particles in stored wheat bulk (Co-Supervised with Dr. F. Jian)
2004	B.Sc.	Ewanek, M.	Investigation of adult *Cryptolestes ferrugineus* distribution at one and sevens of age in a temperature gradient (Co-Supervised with Dr. F. Jian)
2003	B.Sc.	Poitras, B	Heat and mass transfer during frying of French fries (Co-Supervised with Dr. M. Scanlon)
2002	B.Sc.	Johal, A.	Physical properties of buckwheat
2001	B.Sc.	Melvin, S.M.	Design of a singulation device for presentation of grains to a soft X-ray machine
2001	B.Sc.	Place, J.A.	An investigation into popcorn tray formation
2000	B.Sc.	Gillis, K.	Soft X-ray detection of stress cracks in corn
2000	B.Sc.	Minkevich, J.	Rapid detection of rusty grain beetles in samples of stored cereals
1999	B.Sc.	Young, S.	Design parameters for forming popcorn trays
1997	B.Sc.	Waplak, S.	Design and testing of a popcorn tray forming equipment
1997	B.Sc.	Habok, M.N.N.	Comparison of sorption characteristics and insect infestation potential of one hulless and two hulled oat cultivars
1996	B.Sc.	Lamontagne, B.C.	Quantification of the effect of growing location on morphological features of wheat using machine vision
1996	B.Sc.	Lepper, S.	Engineering properties of A.C. Marie, A.C. Belmont, and Robert oats

1995	B.Sc.	McRae, C.	Design and testing of a grain sampling device at a railcar unloading facility
1995	B.Sc.	Samuda, M.J.	Determination of air leakage through bolted metal grain storages - a review
1995	B.Sc.	Spewak, R.	An automated seed singulation device for presenting grains to an image processing system
1994	B.Sc.	Epp, D.	Modification of a control algorithm for near-ambient drying of wheat
1994	B.Sc.	Strong, D.A.	Insect mortality during turning of wheat with a pneumatic conveyer and pencil auger
1993	B.Sc.	Murray, C.E.	An automated seed presentation device for use in machine vision identification of grain
1992	B.Sc.	Bergen, G.A.	Physical damage to peas and lentils due to free fall
1992	B.Sc.	Mann, D.D.	Analysis of the airflow resistance data of grains and seeds - a new approach
1989	B.Sc.	Irvine, D.	Effect of airflow direction on resistance to airflow through flaxseed
1988	B.Sc.	Janzen, T.J.	Design and construction of a small scale grain dryer
1988	B.Sc.	Tishinski, A.T.	Expert system for on farm grain drying
1987	B.Sc.	Girard, M.	Controlled atmosphere storage of wheat
1987	B.Sc.	Griffin, D.	Thermal¬¬ conductivity of potato
1987	B.Sc.	Kukelko, D.A.	Equilibrium moisture content of canola meal

SUPERVISION OF RESEARCH ASSOCIATES, SUMMER RESEARCH ASSISTANTS AND VISITING SCIENTISTS

2013	Chakraborty, S.K.	Visiting Scientist
2013	Teena, M.A.	Visiting Student
2013	Guillard, V.	Undergraduate Research Assistant
2013	Savalle, S.	Undergraduate Research Assistant
2013	McDonald, I.	Undergraduate Research Assistant
2012	Howe, N.	Undergraduate Research Assistant
2012	Kheiralipour, K.	Visiting Student
2011-12	Eigbire-Molen, V.	Undergraduate Research Assistant
2010-15	Jian, F.	Research Engineer
2010	Loganathan, M.	Visiting Scientist
2010-11	Rahman, G.M.A.	Research Associate (co-supervised with Dr. Freund)
2010-12	Habeck, J.E.	Undergraduate Research Assistant
2010-13	Gray, C.M.	Undergraduate Research Assistant
2009	Hemis, M.	Visiting Student
2009	Mani, A.	Undergraduate Research Assistant
2009	Deji, Olanike F.	The Association of Commonwealth Universities Fellow
2008-13	Chelladurai, V.	Research Engineer
2008	Dyrkacz, R.	Undergraduate Research Assistant
2008	Gray, B.	Research Assistant
2007-08	Parker, A.	Undergraduate Research Assistant
2007-08	Parker, V.R.	Engineer-in-Training (Part-time M.Sc. Student)
2007	Griffiths, K.A.	Undergraduate Research Assistant
2006	Sadistap, S.S.	Visiting Scientist
2006	Griffiths, K.A.	Undergraduate Research Assistant

2006	Mavi, P.	Undergraduate Research Assistant (co-supervised with Dr. Paliwal)
2006	Shields, C.	Undergraduate Research Assistant
2005	Parker, V.R.	Undergraduate Research Assistant
2005	Griffiths, K.A.	Undergraduate Research Assistant
2005	Mavi, P.	Undergraduate Research Assistant (co-supervised with Dr. Paliwal)
2004	Parker, V.R.	Undergraduate Research Assistant
2004	Leafloor, E.	Undergraduate Research Assistant
2004	Volkart, T.	Lab Assistant
2003	Zubriski, S.	Undergraduate Research Assistant
2002-04	Ewanek Mary-Anne	Undergraduate Research Assistant
2002	Smith, E.A.	Visiting Researcher
2000-01	Johal, A.	Undergraduate Research Assistant
2000	Visvanathan, R.	Visiting Researcher
2000	Pillai, M.A.	Visiting Researcher
2000	Place, J.	Undergraduate Research Assistant
2000	Stepnuk, L.	Undergraduate Research Assistant
1999-01	Wang, Li	Research Associate
1999-00	Seshadri, M.	Research Associate
1999-00	Suresh, S.	Visiting Researcher
1999	Smith, E.A.	Visiting Researcher
1999	Minkevich, M.	Undergraduate Research Assistant
1997	Habok, M.	Undergraduate Research Assistant
1997	Koutis, M.	Undergraduate Research Assistant
1997	Braun, J.	Undergraduate Research Assistant
1997	Waplak, S.	Undergraduate Research Assistant
1996	Habok, M.	Undergraduate Research Assistant
1996	Koutis, M.	Undergraduate Research Assistant
1996	Lund, K.	Undergraduate Research Assistant
1996	Szmon, M.P.	Undergraduate Research Assistant
1996	Waplak, S.	Undergraduate Research Assistant
1995-96	Domytrak, C.	Research Associate
1995	Habok, M.	Undergraduate Research Assistant
1995	Lamontagne, B.	Undergraduate Research Assistant
1995	Lepper, S.	Undergraduate Research Assistant
1995	Tandon, A.	Undergraduate Research Assistant
1995	Shideler, K	Undergraduate Research Assistant
1995	Smith, E.A.	Visiting Scientist
1994-95	Sreenarayanan	Visiting Scientist
1994	Ramaswamy, H.	Visiting Scientist
1994	Lamontagne, B.	Undergraduate Research Assistant
1994	Lepper, S.	Undergraduate Research Assistant
1994	Samuda, M.	Undergraduate Research Assistant
1994	Spewak, R.	Undergraduate Research Assistant
1994	Tandon, A.	Undergraduate Research Assistant
1993	Cormier, D.	Undergraduate Research Assistant
1993	Epp, D.	Undergraduate Research Assistant
1993	Jindal, R.	Undergraduate Research Assistant
1993	Lamontagne, B.	Undergraduate Research Assistant
1993	Larmond, M.	Undergraduate Research Assistant

1993	Verma, A.	Undergraduate Research Assistant
1993	Smith, E.A.	Visiting Scientist
1992	Grosshans, R.	Undergraduate Research Assistant
1992	Larmond, M.	Undergraduate Research Assistant
1992	Muir, D.P.	Undergraduate Research Assistant
1992	Murray, C.E.	Undergraduate Research Assistant
1992	Verma, A.	Undergraduate Research Assistant
1992-93	Weres, J.	Visiting Scientist
1991	Larmond, M.	Undergraduate Research Assistant
1991	Mann, D.	Undergraduate Research Assistant
1990	Larmond, M.	Undergraduate Research Assistant
1990-93	Alagusundaram, K.	Research Associate (Part-time Ph.D. Student)
1990-93	Irvine, D.A.	Research Associate (Part-time M.Sc. Student)
1990-91	Pabis, S.	Visiting Scientist
1990-91	Smith, E.A.	Visiting Scientist (co-supervised with Dr. W.E. Muir)
1989	Chotard, F.	Undergraduate Research Assistant
1989	Irvine, D.A.	Undergraduate Research Assistant
1989	Muir, D.P.	Undergraduate Research Assistant
1989	Watson, M.	Undergraduate Research Assistant
1988	Chiu, M.	Undergraduate Research Assistant
1988	Irvine, D.A.	Undergraduate Research Assistant
1988	Muir, D.P.	Undergraduate Research Assistant
1988	Townsend, N.	Undergraduate Research Assistant
1987	Chiu, M.	Undergraduate Research Assistant
1986	Girard, M.	Undergraduate Research Assistant
1986	Kukelko, D.A.	Undergraduate Research Assistant

CONTINUING EDUCATION

As a Participant

2017 Participant in a 1-day workshop on Board Governance, Organized by Canadian Society of Association Executives, Ottawa, ON.

2006 Participant in 1-wk course Understanding patents: an introductory course, sponsored by Intellectual Property Institute of Canada and McGill University, Montreal, PQ.

2005 Participated in 27.735 CEO Course, sponsored by I.H. Asper School of Business, University of Manitoba, Winnipeg, MB.

2001 Participant in a 6-h Workshop on Advances in Food/Bioprocessing, sponsored by University of Guelph, ON.

2001 Participant in a 125-h Senior University Administrators Course, sponsored by Centre for Higher Education Research and Development, Winnipeg, MB

1999 Participant in a 25-h course on University Committees and Decision Making, sponsored by Centre for Higher Education Research and Development, Winnipeg, MB

1999 Participant in a 6-h Workshop on Enhancing Influence for Administrators in a System of Collegial Decision Making, sponsored by University of Manitoba, Winnipeg, MB

1999 Participant in a 2-day Workshop on Policy Governance sponsored by Canadian Council of Professional Engineers, Ottawa, ON.

1999 Participant in a 2-h Workshop on Reasonable Accommodation, What Does It Mean?, sponsored by University of Manitoba, Winnipeg, MB

1998 Participant in an 8-h Workshop on Safety by Design sponsored by University of Toronto and Minerva Canada Inc., Toronto, ON.

1998 Participant in a 75-h University Management Course, sponsored by Centre for Higher Education Research and Development, Winnipeg, MB

1998 Participant in a 25-h course on Powerful Writing for University Administrators, sponsored by Centre for Higher Education Research and Development, Winnipeg, MB

1998 Participant in a 20-h Workshop on University Partnerships in Cooperation and Development and Result Based Management, sponsored by Association of Universities and Colleges of Canada, Winnipeg, MB

1998 Participant in a 6-h Workshop on Conflict Resolution, sponsored by University of Manitoba, Winnipeg, MB

1998 Participant in a 6-h Workshop on Leadership, sponsored by Toastmasters International, District 64, Winnipeg, MB

1998 Participant in a 2-h Workshop on Student Concerns/Complaints: University Protocol & Good Advice, sponsored by University of Manitoba, Winnipeg, MB

1997 Participant in a 1.5-h Workshop on Working with SEEQ (Student Evaluation of Educational Quality) Feedback, sponsored by Centre for Higher Education Research and Development, University of Manitoba, Winnipeg, MB

1997 Participant in a 2-h Seminar on Academic Administrator as Facilitator of Research Development, sponsored by Centre for Higher Education Research and Development, University of Manitoba, Winnipeg, MB

1997 Participant in a 2-h Workshop for Chairs of Search Committees, University of Manitoba, Winnipeg, MB

1997 Participant in a 4-h Seminar on Academic Administration, sponsored by Centre for Higher Education Research and Development, University of Manitoba, Winnipeg, MB

1997 Participant in a 4-h Workshop on Software Engineering and Accreditation Procedures, Sponsored by Canadian Engineering Accreditation Board, Kelowna, BC

1997 Participant in a 1-wk Workshop on ATeaching Teachers to Teach Engineering (T^4E)", Sponsored by United States Military Academy, West Point, NY

1997 Participant in a 15-h Workshop on "A Short Introduction to C++ Programming", sponsored by the Faculty of Engineering, University of Manitoba, Winnipeg, MB

1996 Participant in 78.415 Food Microbiology I, sponsored by the Faculty of Agricultural and Food Sciences, University of Manitoba, Winnipeg, MB

1996 Participant in an 1-day Workshop on "The HACCP Habit: Practical Implementation Tips" sponsored by Canadian Institute of Food Science and Technology, Etobicoke, ON.

1996 Participant in an 8-h Workshop on "Outcomes-based Engineering Education" sponsored by American Society of Agricultural Engineers, St. Joseph, MI

1996 Participant in a 3-h Workshop on "PE Examination Explained" sponsored by American Society of Agricultural Engineers, St. Joseph, MI

1994 Participant in a 2-day Workshop on "Integration of Biology into Agricultural Engineering Curricula" sponsored by University of Florida, Gainesville, FL

1993 Participant in a 1-week course on "Techniques of Gas Chromatography" sponsored by Hewlett Packard, Canada.

1990 Participant in 116.730 Seminar in Post-Secondary Instruction, sponsored by the Faculty of Education, University of Manitoba, Winnipeg, MB

1989 Participant in a 15-hour workshop on "Lecturing and Explaining", sponsored by the Faculty of Education, University of Manitoba, Winnipeg, MB

1989 Participant in 116.530 Teaching and Learning in Post-Secondary Institutions, sponsored by the Faculty of Education, University of Manitoba, Winnipeg, MB

1988 Participant in a 4-hour workshop on "Commercializing technological innovations", sponsored by the Institute for Technological Development, University of Manitoba, Winnipeg, MB

1988 Participant in a 15-hour workshop on "Course construction", sponsored by the Faculty of Education, University of Manitoba, Winnipeg, MB

1988 Participant in a 2-week workshop on "Knowledge based systems", Hawthorne, NY, sponsored by the American Society of Engineering Education, Washington, DC

1987 Participant in a 24-hour workshop on WordPerfect, Winnipeg, Manitoba, sponsored by the Continuing Education Division, University of Manitoba, Winnipeg, MB.

1987 Participant in a 1-day workshop on Instruction Development, sponsored by the Academic Development Committee, University of Saskatchewan, Saskatoon, SK

1987 Participant in a 6-hour Workshop on New Techniques in HPLC/GC, sponsored by the Canadian Institute of Food Science and Technology, Manitoba Section, Portage la Prairie, MB

1987 Participant in a 15-hour workshop on MS DOS, Winnipeg, Manitoba, sponsored by the Continuing Education Division, University of Manitoba, Winnipeg, MB.

1987 Participant in a 36-hour non-credit course in Beginner's French, sponsored by the Continuing Education Division, University of Manitoba, Winnipeg, MB

1987 Participant in a 24-hour workshop on Engineering Problem Solving Using TK Solver and Lotus 1-2-3, Chicago, IL, sponsored by the American Society of Agricultural Engineers, St. Joseph, MI.

1986 Participant in a 12-hour Workshop on Time Management in an Academic Environment, Winnipeg, Manitoba, sponsored by the Faculty of Education, University of Manitoba

1986 Participant in a 30-hour Workshop on Communication Effectiveness, Winnipeg, Manitoba, sponsored by the Faculty of Education, University of Manitoba

1986 Participant in a 24-hour Workshop on Creating Expert Systems, Chicago, IL, sponsored by the American Society of Agricultural Engineers, St. Joseph, MI

1981 Participant in a 36-hour non-credit course on Introduction to College Teaching, sponsored by the Faculty of Graduate Studies, University of Manitoba, Winnipeg, MB

As a Contributor

2018 Invited to present a 5-day Workshop "Bio-Imaging for Food Quality Monitoring and Process Automation" hosted by the Guru Nanak Dev University, Amritsar, India under the Government of India's Global Initiative of Academic Networks (GIAN) program.

2005 Invited to present a 4-day workshop "Sino-Canada Symposium on Grain Storage Ecosystem" hosted by the Academy of State Administration of Grain, China

1999 Invited to present 4 three-hour long each workshops on "Bloom's Taxonomy of Cognitive Domain, Developing Course Objectives, Proper Use of Technology in Classrooms, and Consulting in an Academic Environment" at the College of Agricultural Engineering, Tamil Nadu Agricultural University, Coimbatore, India.

1995 Session on Teaching in Labs in Teaching Assistant Workshop, sponsored by Centre for Higher Education Research and Development, University of Manitoba, Winnipeg, Manitoba

1989 Co-organizer and one of two lecturers in a 6-h course on "Introduction to Expert Systems using PC Easy" at the University of Manitoba, sponsored by the Continuing Education Division, University of Manitoba, Winnipeg, Manitoba

UNIVERSITY COMMITTEE ACTIVITIES

University Level

2019- Member, Implementation Committee Responding to Recommendations of the Sexual Violence, Harassment & Discrimination at the University of Manitoba: A Path Forward Report

2019- Member, Governing Circle, National Centre for Truth and Reconciliation

2017- Member, Central Unit Allocation Committee (CUAC)

2015 Member, Planning and Budget Committee

2014 Vice-Chair, Strategic Planning Committee
2013- Member, Campus Planning and Design Committee
2012-14 Member, Internal Campaign Planning Committee
2011-12 Member, Campus Planning Advisory Committee
2009-11 Member, Steering Committee, Resource Optimization and Service Enhancement (ROSE) Project
2009-11 Co-chair, Steering Committee, Optimizing Academic Resources (OARs) Project
2009-10 Chair, Search Committee, Watershed Systems Research Chair
2009- Chair, Senate Committee on University Research
2009- Designated Chair, The Paul H.T. Thorlakson Foundation Fund
2009- Vice-Chair, Provost Council
2009- Chair, Rh Institute Foundation Awards Selection Committees
2008- Member, Advisory Board, Structural Innovation and Monitoring Technologies Resource Centre (SIMTReC) formerly (Intelligent Sensing for Innovative Structures (ISIS) Canada Resource Centre)
2007-09 Member, Alternative Village Steering Committee
2006- Organizer, Manitoba Science, Engineering and Technology Day (held first time in 2007)
2006-09 Organizer, Undergraduate NSERC Research Poster Competition (held first time in 2006)
2006-10 Member, Distinguished Professor Nominating Committee
2006-07 Member, Presidential Advisory Committee to review Vice-President (Academic) and Provost
2004-06 Member, Advisory Committee to develop an academic IT plan
2003-04 Member, Selection Committee, Executive Director, Technology Transfer Office
2004-05 Member, Incubat Management Committee
2004-09 Member, CFI Advisory Committee
2003-09 Member, Senate Planning and Priorities Committee
2002-04 Member, UMFA and UofM Joint Committee on Patents and Copyrights
2002-04 Chair, Dr. Paul H.T. Thorlakson Foundation Fund Scientific Sub-Committee
2001-04 Member, Manitoba Nursing Research Institute, Advisory Committee
2001-04 Member, Health, Leisure and Human Performance Research Institute, Advisory Committee
2001-09 Member, Selection Committees of all recruitment Canada Research Chairs (CRCs)
2001-08 Member, Senior Administrative Council (SAC)
2001-08 Member, Deans/Directors Council (DDC)
2001-08 Member, Rh Institute Foundation Awards Selection Committees
2001-04 Ex-officio Member, Faculty Council of Graduate Studies
2001-04 Member, Senate Committee on the Libraries
2001-04 Member, Executive Committee, Centre on Aging
2001-04 Ex-officio Member, Faculty of Graduate Studies Awards Committee
2001-03 Member, Transport Institute Advisory Committee
2001-04 Chair, University Research Grants Program (URGP)
2001-04 Chair, UM/SSHRC Research Grants Program (RGP)
2001-04 Chair, UM/SSHRC Travel Grants Program (TGP)
2001-09 Chair, Senate Committee on Animal Care (SCAC)
2001-04 Chair, Senate Committee on the Ethics of Research Involving Human Subjects
2001-04 Chair, CFI Advisory Committee
2001-08 Member, Senate Committee on University Research
2001-04 Co-chair, Academic Record System Committee
2001-04 Member, Freedom of Information and Privacy Protection Act (FIPPA) and Personal Health Information Act (PHIA) Review Committee
2001-04 Member, Academic Development Fund Advisory Committee
2001-04 Member, Advisory Board for UILO's Corporate Affiliation Program
2001-04 Member, Commercialization Assessment Group (CAG)

2001-04 Member, UMR Board
2001-02 Coordinator, Flood Architecture Institute Committee
2000 Member, Advisory Committee for Selection of the Executive Director, Technology Commercialization and Research Services
1999-00 Member, UMFA and UofM Joint Committee on Patents and Copyrights
1999-03 Member, Research Development Fund Advisory Committee
1997-98 Member, Search Advisory Committee for the Vice-President (Research)
1993-94 Member, Research Development Fund Advisory Committee
1992 Member, Organizing Committee, Conference on Porous Media
1990 Member, Ad Hoc Committee for Graduate Teaching Programs
1986-90 Member, Faculty Council of Graduate Studies

Faculty Level (Engineering)

2003-13 Member, Advisory Committee, NSERC IRC in Power Systems Simulation
1998-00 EASIAP Liaison Professor, MacDon Industries Ltd., Easy Industry Access Program
1998-00 EASIAP Liaison Professor, United Grain Growers Ltd., Easy Industry Access Program
1997-99 Member, Deans and Heads Committee
1997-99 Member, Academic Regulations and Curriculum Committee
1997-99 Member, Program Review Committee
1996-97 Member, Curriculum Renewal Committee
1996-97 Member, Ad-hoc Committee Continuing Education
1995-96 Member, Faculty Advance Planning Committee
1994-95 Member, Ad-hoc Committee on Faculty Council
1994-97 Member, Computer Use Committee
1991-98 EASIAP Liaison Professor, Vansco Electronics Ltd., Easy Industry Access Program
1989-94 Member, Academic Regulations and Curriculum Committee
1986-90 Member, Graduate Studies Committee
1985-89 Member, Library Committee
1988-89 Chairman
1985- Member, Faculty Council

Faculty Level (Agricultural and Food Sciences)

2006 Member, Selection Committee for a Tenure-track academic position in Animal Science
2001 Ex-officio Member, Selection Committee for a Tenure-track academic position in Animal Science
2000-01 Ex-officio Member, Selection Committee for a Tenure-track academic position in Biosystems Engineering
2000-01 Chair, Computer Committee
2000 Chair, Strategic Planning Committee for Research
2000 Chair, Strategic Planning Committee for Co-op Program
1999-01 Chair, Research Committee
1999-00 Chair, Organizing Committee, Agri-Food Research Fair
1998-99 Member, President's Advisory Committee for Selection of Dean of the Faculty of Agricultural and Food Sciences
1998-99 Member, Research Committee
1997-01 Member, Faculty Executive Committee
1997-00 Member, Curriculum Committee
1996-99 Member, Tenure/Promotion Nucleus Committee
1996-97 Member, Student Recruitment and Outreach Committee

1994-97 Member, Computer Committee
1993-94 Member, Dean's Advisory Committee for Selection of Head of Food Science
1992-93 Member, Research Committee
1990 Facilitator, Strategic Planning
1990 Member, Dean's Advisory Committee for Selection of Head of Agricultural Engineering
1986-90 Member, Graduate Studies Committee
1986 Member, Dean's Advisory Committee for Selection of Head of Agricultural Engineering
1985- Member, Faculty Council
1985-91 Member, Computer Committee

Department Level (Biosystems Engineering)

2004 Member, Selection Committee for an instructor position
2001-02 Member, Selection Committee for a Tenure-track academic position
1997-98 Chair, Selection Committee for a Tenure-track academic position
1996-97 Member, Selection Committee for a Tenure-track academic position
1995 Ad hoc Committee on Curriculum Development for 1+4 Program
1995- Member, Biosystems Engineering Department Council
1994-97 Chair, Standing Computer Committee
1993-94 Ad hoc Committee on Space Use
1989 Member, Selection Committee for a Tenure-track academic position
1989-93 Co-chair, Organizing Committee International Symposium on Stored Grain Ecosystems
1988-00 Member, Ph.D. Student Selection Committee
1988 Member, Selection Committee for a Tenure-track academic position
1987 Member, Selection Committee for a Tenure-track academic position
1987-93 Member, Standing Computer Committee
1985-95 Member, Agricultural Engineering Department Council

PROVINCIAL AND NATIONAL PROFESSIONAL ACTIVITIES

Canada Research Coordinating Committee (CRCC)
2018-19 Member

Canadian Academy of Engineering (CAE) Honours and Awards Committee
2018- Member

Oceans Research in Canada Alliance (ORCA) Council
2017- Member

North Forge Technology Exchange
2017- Member, Board

National VPR Meeting
2016- Chair, Working Group

Compute Canada
2015-16 Member, Working Group for a Sustainable Business Model

Centre for Healthcare Innovation (CHI)
2015- Member, Executive Council

Research Institute for Oncology and Haematology (RIOH), a joint institute of the CancerCare Manitoba and the University of Manitoba
2015- Member, Advisory Board

National Collaborating Centre for Infectious Diseases (NCCID)
2015- Member, Advisory Board

University of Saskatchewan
2015 Reviewer for graduate program in biological engineering, Faculty of Graduate Studies and Research

Canadian Glycomics Network - a Network of Centres of Excellence
2016- Chair, Commercialization Committee
2014- Member Board of Director

Canadian Medical Hall of Fame
2015 Member, Induction Committee

Research Manitoba
2015 Member, Research Improvement Through Harmonization in Manitoba (RITHiM) Steering Committee
2014- Board Member
- 2014- Vice-Chair
- 2014- Member, Executive Committee
- 2014- Chair, Nominating and Governance Committee

U15 Research Committee
2016- Vice-Chair
2012- Member

Royal Society of Canada
2012-13 Member, Applied Science and Engineering (ASE) Fellow Selection Committee

CancerCare Manitoba Foundation
2012- Member, Projects, Grants & Awards Committee

Canada-Israel FASD (Fetal Alcohol Spectrum Disorder) Consortium Steering Committee
2010-13 Member

Manitoba Centre for Health Policy (MCHP)
2010- Member, Advisory Board

Canadian Engineering Education Association (CEEA)
2010 Founding Member

Canadian Institute for Advanced Research (CIFAR)
2010- Member, Research Council

Agriculture and Agri-Food Canada
2010-12 Member, Stakeholder Reference Group

MabNet (an NSERC Strategic Network)
2010-16 Member, Board of Directors

TRIUMF (Canada's National Laboratory for Particle and Nuclear Physics)
2009- Member, Board of Management
- 2016- Chair
- 2016-17 Chair, Board of Directors Advanced Applied Physics Solutions Inc. (AAPS); TRIUMF Innovations Inc.
- 2014-2016 Vice-Chair
- 2014-16 Chair, Innovations and Industrial Partnerships Committee
- 2013-14 Member, ARIEL Completion Taskforce
- 2011- Member, Audit Committee
- 2010- Member, Finance Committee
- 2011- Member, Executive Committee
- 2010-14 Member, Technology Transfer Committee

ArcticNet − a Network of Centres of Excellence
2009- Board Member
- 2012 Audit and Finance Committee

WestGrid
2009- Member, Member Council

International Centre for Infectious Diseases (ICID)
2009-15 Board Member

Manitoba Health Research Council (MHRC)
2009-14 Board Member
- 2012-14 Vice-chair
- 2012-14 Member, Executive Committee
- 2009-14 Member, Nominating and Governance Committee
  - 2012-14 Chair
- 2009-11 Member, Research Infrastructure Committee

2001-04 Board Member

McGill University
2008 Reviewer for Ph.D. programs in seven units of the Faculty of Agricultural and Environmental Sciences

Canada-Wide Science Fair (CWSF) 2009
2007-09 Honorary Patron

Agri-food Research and Development Initiative (ARDI)
2007-09 Board Member

Manitoba Advanced Manufacturing Research
2006-07 Member, Steering Committee

Cameco NSERC Prairie Chair for Women in Science and Engineering
2005-10 Member, Advisory Board

Green Crop Network (an NSERC Strategic Network)
2005-10 Member, Advisory Board

Consulting Engineers of Manitoba (CEM)
2005-11 Judge, Annual Award Selection

TRTech (formerly TRLabs) Board of Directors
2004-16 Vice-chair (Chair, September 04-March 05)
2007-19 Member (representing all prairie member universities)
2005-06 Member, Review Committee
2001-04 Member (Alternate), TRLabs Board of Directors

Composite Innovation Centre (CIC)
2004- Member, Board of Directors

University Advisory Group (UAG)
2003-08 Member

Manitoba Business of Science
2002-04 Member, Steering Committee

Manitoba Chamber of Commerce (MCC)
2003-14 Board Member

Manitoba Biotech Strategic Development Project
2002 Member

Manitoba Hydrogen Steering Committee
2002-08 Member

Manitoba Agri-food Research and Development Group
2001-04 Member

Canadian Agri-Food Research Council (CARC)
2001-03 Member, Standing Committee on the Inventory of Canadian Agri-Food Research (SCICAR)

Genome Prairie
2008- Member, Board of Directors
2008- Member, Communications Committee
2000-02 Member, Board of Directors
2001-02 Member, Executive Committee
2001-02 Member, Audit Committee

Canadian Grain Commission (CGC)
2004 Member, Selection Committee, Director, Grain Research Laboratory
2000-04 Member, Automated Quality Testing (AQT) Technical Committee
2001-06 Member, Advisory Committee, Grain Research Laboratory
1999-00 Member, RIOT (Rapid Instrumental Objective Testing) Technical Committee

Canaught Biotechnology
1999-00 Member, Project Evaluation Committee

Western Grains Research Foundation (WGRF)
1999-01 Member, Research Advisory Committee

Canadian Association for Co-operative Education
1998-00 Member

Natural Sciences and Engineering Research Council of Canada (NSERC)
2018- Vice-President and Chair of the NSERC Council (one year break to serve as Interim President of NSERC)
2015-18 NSERC Leader
2015-18 Member, Committee on Research Partnerships
2014- Member, Council
2014- Member, Executive Committee
2014 Member, 2020 Steering Committee
2012 Chair, Research Network Site Visit Committee, Western University
2010 Chair, Research Network Site Visit Committee, McMaster University
2009 Chair, Research Network Site Visit Committee, University of British Columbia
2008 Chair, Research Network Site Visit Committee, University of Guelph
2006-10 University Rep
2005-06 Member, Selection Committee, Manager Winnipeg Regional Office
2004 Chair, Research Network Site Visit Committee, McMaster University
2002-03 Member, Tri-agency Working Group on Conflict of Interest Schedule
2001-04 Member, Research Network Selection Committee
2003-04 Chair
1997-01 Member, Strategic Grant Selection Panel
1999-01 Chair

Science Council Manitoba
1996-97 Board Member

Engineers Canada (EC), prior to 2006 Canadian Council of Professional Engineers (CCPE)
2010-18 Member, Board of Directors
2017-18 Member, CEO Search Committee
2017-18 Member, Governance Committee
2016-17 Past-President
2016-17 Chair, Nomination Committee
2016-17 Chair, Governance Committee
2016-17 Chair, Compensation Committee
2015-16 President
2014-15 President-Elect
2014-17 Member, Executive Committee
2015-16 Chair
2015-17 Member, Governance Committee
2014-17 Member, Compensation Committee
2014-15 Chair, Ownership Linkage Taskforce
2014-15 Chair, Indigenous People Sub-Committee
2013-15 Member, Sustainable Membership Committee
2013-14 Chair, International Engineering Graduate Committee

2013-14 Member, Governance Committee
2012-14 Chair, Joint Committee Assembly of First Nations / Engineers Canada
2011-12 Member, Joint Committee Assembly of First Nations/Engineers Canada
2011-13 Member, Executive Committee
2011-12 Member, Women in Engineering Committee
2010-13 Member, International Committee
2010-11 Observer, Canadian Engineering Accreditation Board
2010-11 Member, Indigenous People Outreach Task Force

2002-05 From Consideration to Integration (FC2I)
2002-04 Member, Steering Committee,
2003-04 Chair, Licensing Sub-Committee
2004-05 Member Transition Committee

1993 Canadian Engineering Accreditation Board (CEAB) Visiting Team Member

1992-04 Member, Canadian Engineering Qualifications Board (CEQB)
2002-04 Past-Chair
2000-02 Chair
1998-00 Vice-Chair
2000-01 Chair, Software Engineering Experience Task Force
1999-00 Member, Specialization Task Force
1998-00 Chair, National Database Committee
1998-00 Member, Task Force on Admission to the Practice of Engineering in Canada
1998-99 Member, Organizing Committee, First National Forum on Continuing Education
1996-99 Member, Common Examination Committee
1995-00 Chair, Syllabus of Examinations Committee
1993-95 Chair, Foreign Engineering Qualifications Committee

Engineers and Geoscientists Manitoba (formerly Association of Professional Engineers and Geoscientists of the Province of Manitoba (APEGM)

2015- Honorary Life Member
2014-17 Member, Public Interest Review Committee (PIRC)
2008-17 Chair, Academic Review Committee (ARC)
2004-08 Member, APEGM Council
2006-08 Past-President, APEGM
2006-08 Chair, Nominating Committee
2005-06 President, APEGM
2004-05 President-elect, APEGM
1998-04 Member, Experience Review Committee (ERC)
1998-04 Vice-chair, Academic Review Committee (ARC)
1994-98 Member, Experience Review Board (ERB) (predecessor of ERC)
1994 Member, Four-year Work Experience Requirement Task Force
1992-94 Member, Ad-hoc Computer System Committee
1991-93 Member, Manual Review Sub-committee of the Board of Examiners
1989-98 Member, Board of Examiners (predecessor of ARC)
1995-98 Vice-Chairman
1987-94 Member, Publications Committee
1986-2015 Member

Manitoba Institute of Agrologists (MIA)

2009-15 Member, Provincial Council
2010-12 President

2012-17 Member, Governance Committee
2012-2014 Chair
1997- Member

Agriculture Institute of Canada (AIC)
1997- Member
2006-12 Member, Board of Directors
2011-12 President
2010-11 Chair, Nominating Committee
2007-08 Member, Nominations Committee
2007-08 Member, Owner Engagement Committee

Agri-Food 2000 (AIC/CIFST/CSAE/Flax Council Conference)
1997-00 Chair, Technical Program Committee

Canadian Institute of Food Science and Technology (CIFST)
2008-13 Member Fellows Selection Committee
2000-01 Past-President
2000-01 Chair, Awards Committee
1999-00 President
1998-99 President-Elect
1997-98 Vice-President
1995-97 President, Manitoba Section
1995-97 Member, National Council
1993-95 Program-chairman/President-elect, Manitoba Section
1990-91 Past-President, National Food Process Engineering Division
1989-90 President, National Food Process Engineering Division
1989-93 Membership Director, Manitoba Section
1988-89 President-elect, National Food Process Engineering Division
1987- Professional Member
1986-89 Local Director, Manitoba Section
1986-89 Director, Publications and Membership, National Food Process Engineering Division
1985-86 Associate Member

Canadian Society for Bioengineering (CSBE), prior to 2004 Canadian Society for Agricultural Engineering (CSAE)
2004-05 Chair, Nomination Committee
2004-05 Chair, By-laws Committee
2004-05 Chair, Advisory Council of Past-Presidents
2004-05 Past-president
2003-04 President
2002-03 President-elect
1997-98 Past-Chair, Awards Committee
1996-97 Chair, Awards Committee
1995-96 Vice Chairman, Awards Committee
1988-90 Regional Director (Manitoba)
1984- Member
1980-83 Student Member

Graduate Students' Association, University of Saskatchewan
1984-85 Vice-President (External)

1984-85 Representative on Library Advisory Committee

INTERNATIONAL PROFESSIONAL ACTIVITIES

Global Research Council
2018-19 Member, Governing Board

International Conference on Agricultural Engineering (ICAE), Muscat, Sultanate of Oman
2012-13 Member, International Scientific Committee

International Cereal and Bread Congress (ICBC2012)
2011-12 Member, Scientific Committee

Trends in Industrial Measurements and Automation (TIMA) 2011
2010-11 Member, International Advisory Committee

International Commission of Agricultural and Biosystems Engineering (CIGR)
2013-14 Member, International Scientific Committee for the 8th CIGR International Technical Symposium
2009-11 Board Member, Section VI Postharvest Technology and Process Engineering
2008-09 Member, Scientific Committee, 4th CIGR Section, VI International Symposium on Food and Bioprocess Technology

The 6th Asia-Pacific Drying Conference (ADC2009)
2008-09 Member, International Advisory/Scientific Panel

International Grain Quality and Technology Congress
2008 Member, Organizing Committee

Asian Drying Congress (ADC) 2005
2004-05 Member, International Scientific Committee

International Congress on Engineering and Food (ICEF 10)
2004 Member, Honorary Committee

TIMA 2004 (Trends in Industrial Measurement and Automation)
2004 Member, Advisory Committee

Oklahoma State University
2001-03 Advisory Board Member, Stored Products Research and Education Center

National Council of Examiners for Engineering and Surveying (NCEES, USA)
1999-2003 Engineering Licensure Qualifications Task Force

International Union of Food Science and Technology
2000-01 Canadian Representative

American Society of Agricultural and Biological Engineers (ASABE), prior to 2005 American Society for Agricultural Engineers (ASAE)
2018- Life Member
2014-17 Member, M-156 Kishida International Award Selection Committee

2005-08 Member, E-08 Fellows Committee
2003-04 Member, Board of Trustees
2002-03 Member, Publication Council
2000-02 Member, Membership Development Council
2000-01 Chair, FPE Nominating Committee
2000-01 Chair, M-154 IAFIS-FPEI Food Engineering Award Committee
1999 Chair, North-Central Inter-Sectional Conference Committee
1999-00 Member, M-154 IAFIS-FPEI Food Engineering Award Committee
1998-99 FPE-06 Chair General Program Committee
1998-99 Member, E-10 International Meetings Committee
1997-01 FPE-01 Food and Process Engineering Institute Executive Committee
- 2000-01 Past-chair
- 1999-00 Chair
- 1998-99 Vice Chair
- 1997-98 Secretary

1997-01 FPE-02 Food and Process Engineering Institute Steering Committee
- 2000-01 Past-chair
- 1999-00 Chair
- 1998-99 Vice Chair
- 1997-98 Secretary

1997-00 Member, P-210 Academic Program Administrators
- 1999-00 Executive Committee Member

1996-00 Member, IET-312 Machine Vision Committee
1995-97 Member, P-502 Steering Committee (Publications)
1995-97 Member, IET-04 Publications Review
1994 Chairman, North-Central Inter-Sectional Conference Committee
1992-98 Member, P-511 Refereed Publications Committee
- 1995-97 Chair
- 1997-98 Past-Chair

1991-01 Member, IET-217 Finite Element & Numerical Analysis Committee
1990-99 Member, FPE-03 Standards Group
1989-93 Member, FPE-70 Technical Group
1989-94 Member, FPE-02 Steering Committee
1989-90 Vice-Chairman, Manitoba North Central Region
1989-91 Chairman, Awards Committee, North Central Region
1988-97 Member, FPE-041 Refereed Publications Committee
- 1992-93 Past-Chairman
- 1991-92 Chairman
- 1990-91 Vice-Chairman

1988-97 Member, FPE-04 Publications Group
- 1992-93 Past-Chairman
- 1991-92 Chairman
- 1990-91 Vice-Chairman

1988-92 Member, FPE-042 News Committee
1988-95 Member, IET-353 Instrumentation and Controls Committee
- 1994-95 Past-Chairman
- 1992-94 Chairman
- 1991-92 Vice-Chairman
- 1990-91 Secretary

1988-18 Member
1987-88 Member, Nominating Committee, North Central Region

1987-89 Member, FPE-06 General Program Committee
1987-93 Member, FPE-703 Food Process Committee
1991-93 Past-Chairman
1989-91 Chairman
1987-89 Vice-Chair
1987-92 Member, FPE-701 Physical Properties of Agricultural Products Committee
1986- Member, FPE-702 Grain and Feed Processing and Storage Committee
1995-97 Past-Chairman
1993-95 Chairman
1991-93 Vice-Chairman
1989-91 Program Chairman
1985-88 Reporter, Agricultural Engineering Computer Newsletter
1982-88 Associate Member
1980-81 Student Member

Institute of Food Technologists (IFT)
1987-88 Professional Member

Controlled Atmosphere and Fumigation (CAF) Conference International Committee
2010- Secretary and Treasurer
1994-10 Member (Canadian), Permanent Committee

International Standards Organization (ISO)
2005-06 Chair, Canadian Advisory Committee CAC on ISO/TC 23/SC 13 Powered Lawn and Garden Equipment
1988-11 Member, Subcommittee TC23/SC07 Equipment for harvesting and conservation
1988-11 Member, Subcommittee TC23/SC10 Equipment for transportation and handling

Sigma Xi, The Scientific Research Society
2015- Associate Director, Canadian/International
2004- Life Member
1996-98 Past-President, Manitoba Chapter
1994-96 President, Manitoba Chapter
1992-94 President-elect and Program Chairman, Manitoba Chapter
1991-92 Awards Chair, Manitoba Chapter
1990-98 Member

Asian Association for Agricultural Engineering (AAAE)
1998-00 Vice-President, Energy, Environment and Emerging Technologies
1994- Life Member
1991-94 Member

Applied Zoologists Research Association (AZRA), India
2005- Vice-President
2004 Member, Advisory Committee, VII AZRA Conference
1992- Life Member
1993-02 Vice-President
2000- Fellow

Indian Society of Agricultural Engineering (ISAE)
1994- Life Member

EDITORIAL CONTRIBUTIONS

2011-19 Associate Editor, Agricultural Research
2007- Member, Editorial Board, Food and Bioprocess Technology
1999-02 Member, Editorial Board, Journal Food Science and Technology (India)
1996-02 Member, Editorial Board, Agricultural Engineering Journal (International)
1995- Member, Editorial Board, Journal of Stored Products Research
1994-95 Editor, Communique, a quarterly newsletter of national Food Process Engineering Division of the Canadian Institute of Food Science and Technology
1991-97 Associate Editor, Canadian Agricultural Engineering
1991-97 Associate Editor, Transactions of the ASAE (FPE and IET Divisions)
1991-97 Associate Editor, Applied Engineering in Agriculture (FPE and IET Divisions)
1989-91 Editor, CSAE Newsletter
1987-99 Editor-at-large Agricultural and Food Engineering, Marcel Dekker Inc.
1986-89 Editor, Communique, a quarterly newsletter of national Food Process Engineering Division of the Can. Inst. of Food Sci. and Tech.

COMMUNITY SERVICE

2018- President, India Canada Culture and Heritage Association Inc. (ICCHA)
2010-12 Vice-Chair, Advisory Council, India Canada Culture and Heritage Association Inc. (ICCHA)
2008-10 Chair, Advisory Council, India Canada Culture and Heritage Association Inc. (ICCHA)
2005-16 President, Indo-Canada Chamber of Commerce Winnipeg Council
2004-08 Member, Board of Director, India Canada Culture and Heritage Association Inc. (ICCHA)
2004-05 Chair, Education Committee, and Board Member, Manitoba-India Chamber of Commerce
1999-00 Joint-Secretary, India Association of Manitoba Inc.
1998 Ambassador India Pavilion, Folklorama
1998 Coach Soccer, Dakota Seahawks
1996 Mentor, Cooperative Education Program, General Wolfe School
1995 Member Editorial Board, Hindu Darshan, Hindu Society of Manitoba
1995 Coach Soccer, Dakota Royals
1995 Mentor, Cooperative Education Program, General Wolfe School
1995 Chairman, Nominating Committee, Hindu Society of Manitoba
1994-95 Member, Fund Raising Committee, Ecole Highbury School
1994 Coach Soccer, Dakota Knights
1993 Assistant Coach Soccer, Dakota Lazers
1993 Judge, Manitoba Schools' Science Symposium
1993-94 Past-President, Hindu Society of Manitoba
1993-94 Member, Nominating Committee, Hindu Society of Manitoba
1992-93 President, Hindu Society of Manitoba
1991-92 Chairman, Diwali Function Organizing Committee, Hindu Society of Manitoba
1991-92 Vice-President, Hindu Society of Manitoba
1990-91 Chairman, Education Committee, St. Germain Immersion School Parents Committee
1990-91 Parents Advisory Committee on Life Skills Curriculum, St. Vital School Division
1990-91 Member, Long Range Planning Committee, Hindu Society of Manitoba
1989-90 Principal, Hindi School (The school is attended by about 25 students)
1988-89 Chairman, Education Committee, St. Germain Immersion School Parents Committee
1988-89 Organized a class “French for Parents” which was attended by 31 St. Vital residents