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The Faculty of Agricultural and Food Sciences
University of Manitoba

Vision Statement
To be the Gateway to the Future of Agri-Food Knowledge

Mission Statement
To provide leadership in education and research by advancing the knowledge and understanding of science related to production, processing, preservation and marketing of food and other agricultural products consistent with:

- a dependable supply of safe and nutritious food;
- the viability of the agri-food industry and rural economy; and
- the conservation of the natural resource base and enhancement of environmental quality.
Greetings. It is my pleasure to re-acquaint you with staff and students – both current and former - who are the Faculty of Agricultural and Food Sciences at the University of Manitoba. Many of them are well known in their fields. Many have won awards. All are valued as people who make a difference in our world. You’ll see what I mean when you read the 50th Annual Progress Review.

A lot has happened on campus during the past year. We are leading the development of the Richardson Centre for Functional Foods and Nutraceuticals in conjunction with Human Ecology, Pharmacy and Medicine. We are planning the Centre for Agroecological Livestock Production Systems – North America’s first facility to study long-term nutrient balance systems. We are opening the Grain Storage Research Centre where scientists will be able to duplicate and study any stored grain situation.

And those are just a few of the more visible research projects. There are many more such as developing increased disease resistance in canola and high erucic acid rapeseed or studying the impact of subacute ruminal acidosis on health and production of dairy cows! Our research is well supported by public and private sources. We are relevant and connected.

And even better news - our undergraduate enrolment in first year rose this past year by 50 percent in Degree and 10 percent in Diploma. Indications are that the trend will continue in the fall of 2004. We know however, that we’re battling a very negative perception of our industry right now – a negativity I don’t share. To help high school students, their parents and teachers understand the opportunities accessed through our Faculty, we will soon launch a novel marketing campaign.

The campaign is based on focus groups of students who told us the word ‘agriculture’ aka farming, gets in the way of their considering our Faculty. Because we know farming is only one important career open to our grads, we’re going to promote the Faculty with a new slogan – It’s not ALL about farming! We hope the new attitude embodied in that line will help us reach our goal to double enrolment in the next five years.

But - someone else will head that initiative because, as of July 1, 2004, I will no longer be Dean of the Faculty of Agricultural and Food Sciences. My replacement, Dr. Michael Trevan, will inherit a team of scientists, educators and administrators ready to support him in the many important accomplishments yet to come. I, however, will miss the daily contact with staff, students and alumni. The five years have been full and rewarding.

Thank you for the privilege of leading these developments and witnessing these outstanding people achieve great things within the University and beyond.

Harold Bjarnason
Dean
Faculty of Agricultural and Food Sciences
Academic Programs

Biosystems Engineering Enhances Environment, Biomedical Streams

Some significant modifications were made to the undergraduate curriculum in Biosystems Engineering to emphasize the environmental and biomedical streams. These changes included the addition of a human physiology course and a human anatomy course in the core of the Biosystems program, introduction of a technical elective on assistive technologies, and introduction of two technical electives — pollution prevention and soil remediation — in environmental engineering.

Organic Course Offered Online

The Faculty’s first course on organic crop production went online and in the classroom January 2004. “Organic Crop Production on the Prairies” consists of seven modules that address optimum crop production. The course highlights organic crop production principles and practices in both wet and dry areas of the prairies and within the different prairie soil zones. It is available as both a credit and non-credit course.

Syngenta Graduate Awards Announced

Last fall, Syngenta Crop Protection Canada announced a major award to support graduate students at the University of Manitoba. Syngenta gave $100,000 to the Faculty to set up the award, which will be matched by funds from the Manitoba Scholarship and Bursary Initiative. The Syngenta Graduate Scholarship will go to a student working in an area related to sustainable agriculture, specifically environmental quality and resources management, integrated pest management, introduction of new technologies, economic viability and rural community sustainability.

Agribusiness Develops New University 1 Course

The Department of Agribusiness and Agricultural Economics has added another entry to the Faculty’s offering of University 1 level courses. “Economics of World Food Issues and Policies” will provide students with an overview of global food consumption, food security and malnutrition, as well as international trade’s role in balancing world supply and demand.

Industry Demand Drives Agri-Finance Course

At the request of the agri-finance industry in Manitoba, the School of Agriculture is developing an agri-finance program within the two-year Diploma course. With the anticipated financial support of the industry, the School hopes to offer internal and external courses in this topic as of the fall of 2005.

Food Science Program Opportunities in China, Korea

Drs. Greg Blank, Arnie Hydamaka and Jung Han of the Department of Food Science visited several universities in China in late 2003 in conjunction with a trip by Dr. Qiang Zhang of Biosystems Engineering and Dean Harold Bjarnason. Student recruitment was the major topic for discussion. Future agreements to provide the final two years of training in a B.Sc. (Food Science) program were discussed with Nanjing University. Dr. Han also visited two universities in Korea, and Kyungnam University in Masan, South Korea, indicated interest in the development of a “2+2” training program in Food Science leading to a B.Sc. degree for their students from the University of Manitoba.
Research Highlights

Rapeseed/Canola Breeding Program Receives Major Boost

The Natural Sciences and Engineering Research Council, CanAmera Foods and the Manitoba Canola Growers Association contributed nearly $3.5 million for the research and development of new and better varieties of canola and high erucic acid rapeseed (HEAR). The investment provides funding for two new industrial research chairs to work in canola and HEAR research and development over the next five years. Plant Science’s Dr. Peter McVetty will serve as senior chair and Dr. Genyi Li was named as the associate chair.

Genomics Data Platform Created

Dr. Brian Fristensky, Plant Science, is one of seven principal investigators on “An Integrated & Distributed Bioinformatics Platform for Genome Canada”, a three-year project funded by Genome Prairie. This collaboration will link the regional Genome Canada Centres by developing a dedicated hardware component and software platform, providing a powerful infrastructure for participating researchers and facilitating analysis of genomics data. Brian's part of the project is focused on defining and quantifying biases that exist in biological databases.

Western Grain Transportation Reform Discussed

In October 2003, the Department of Agribusiness and Agricultural Economics organized a conference exploring the impact of the end of grain transportation subsidies. “The Agricultural Industry After Western Grain Transportation Reform: The Good, the Bad and the Unexpected” was the idea of the late Dr. Daryl Kraft. The conference, dedicated to Daryl's memory, was well attended by representatives of all areas of the grain industry, including producers, producer groups, financial institutions, grain companies, railways, the Canadian Wheat Board, federal and provincial government, and university researchers. The conference was organized with funding assistance from Manitoba Rural Adaptation Council.

Nutraceuticals, Functional Foods Focus of Major Conference

A conference organized by Kelley Fitzpatrick, Richardson Centre for Functional Foods and Nutraceuticals, brought together 200 people in Winnipeg this past fall. “Canada: A Global Innovator in Functional Food Ingredients” included several international speakers and discussion of the research, technical and business development issues related to functional foods and nutraceuticals.

Faculty Seminar Series Continues

In 2003-04, the Faculty hosted another successful series of seminars designed to highlight and promote the research capabilities and current research interests of each department within the Faculty.

- Dr. Wole Akinremi, Soil Science, “Transport and transformation of nutrients, pesticides and pathogens in soil”
- Dr. Martin Entz, Plant Science, “Using sustainable agricultural knowledge from three continents to enhance cropping system function in Manitoba”
- Dr. Harry Sapirstein, Food Science, “Western Canadian wheat quality assurance: Stresses on an over-achieving system”
- Dr. Jared Carlberg, Agribusiness and Agricultural Economics, “Farmland values in the Red River Valley: A Manitoba/North Dakota comparison”
- Dr. Denis Krause, Animal Science, “Food borne pathogens in beef production; a systems approach in tropical Australia”
- Dr. Qiang Zhang, Biosystems Engineering, “Training human sniffers to quantify hog manure odour”
- Dr. Terry Galloway, Entomology, “Fly Wars II - Attack of the Horse Flies”
Outreach Activities

Agronomists Conference Continues to Grow

The fourth annual Manitoba Agronomists Conference was held in December 2003, with over 200 agronomists in attendance. The conference is sponsored by the University of Manitoba, Agriculture and Agri-Food Canada and Manitoba Agriculture, Food and Rural Initiatives, and is a forum where Manitoba agronomists meet to discuss the latest developments and trends in crop production. More than 40 speakers made presentations on pest management, soils, crop management and potato production. The conference proceedings are available online at umanitoba.ca/afs/agron_conf/.

Arborists’ Program Provides Tree Care Accreditation

A record number of 66 students wrote the final exam in spring 2003 to obtain accreditation in the Manitoba Arborists’ Training and Examination Program, offered jointly by the School of Agriculture and Assiniboine Community College. The program leads to accreditation required for obtaining a Manitoba Arborist Licence. As of 2003, this licence, issued by Manitoba Conservation, has been required for all tree care workers in Manitoba who work as arborists.

Workshop Demonstrates Applied Science in the Field to Students

In June of 2003, more than 40 students from Fort Richmond and St. James Collegiates enjoyed a visit to the Faculty’s Carman Research Station where they participated in a day-long workshop. Representatives from the Department of Soil Science presented “Saving Topsoil: Good for Farmers, Good for the Environment” and their colleagues from the Department of Plant Science presented “A World of Science Behind Crop Production”. The students enjoyed hands-on activities such as field scouting and soil testing, and learned about the applied science involved in agriculture.

Teachers’ Learning Adventure Launched

In the summer of 2003, the Faculty was a key sponsor of Agriculture in the Classroom-Manitoba’s new program dedicated to Manitoba school teachers. The Teachers’ Learning Adventure took 20 teachers into the ‘wilds’ of rural Manitoba for an intense, week-long learning experience. With a base camp at the Riding Mountain Guest Ranch, the teachers experienced farms where producers shared their personal experiences and profound connections to agriculture. The teachers were able to use the adventure as credit toward their Post Baccalaureate degree at the University of Manitoba. Best of all, the teachers will take their experience and new knowledge back to their classrooms!

Horticultural Inquiries Website Goes Live

Designed to supplement the Hort Line telephone service operated by the Department of Plant Science in the summer months, a new Horticultural Inquiries website was launched at umanitoba.ca/afs/hort_inquiries/. The site features information about Manitoba plants, trees and vegetables, and the pest, disease and environmental challenges they face. Funding for this website was provided by Faculty of Agricultural and Food Sciences Endowment Fund and the Continuing Education Division Endowment Fund.

Research Links Column Continued

The Farmers’ Independent Weekly newspaper continues to print a weekly column highlighting Faculty research, entitled “Research Links”. Each week the column features an article written by a Faculty member or graduate student describing current research activities and projects within the Faculty. In 2003, the Faculty provided 45 columns to the newspaper. All columns (which date back to June 2002) are archived on the Faculty’s website at umanitoba.ca/afs/fiw/.
Open House Hosted at Glenlea Research Station

The Glenlea Research Station held an Open House in October 2003 for neighbours of the facility. Researchers were on hand to explain the plans and projects that will become the Centre for Agroecological Livestock Production Systems (renamed the National Centre for Livestock and the Environment). The Centre will be pursuing long-term solutions to the environmental challenges of intensive livestock production systems.

Entomology Students Share Their Knowledge with Children

Graduate students in the Department of Entomology participate in numerous public education and outreach activities each year, and particularly focus their attention on informing young people about the fascinating world of insects. The busiest activity of the year was the Amazing Insects section of the Amazing Grains event in the fall of 2003 where, in a span of three days, 1200 Winnipeg school children were treated to interactive sessions on insect diversity, grain pests, insect morphology and apiculture. In addition to drawers of pinned, spectacularly exotic insects and familiar Manitoba bugs, the students add life to their presentations with a small menagerie of ants, tarantulas, cockroaches, bugs, grasshoppers and stick insects.

Cridde/Vane Homestead Historic Site Proposal Supported

Dr. Rob Roughley, Entomology, provided input to a proposal to recognize as a site of National Historic Significance the Cridde/Vane Homestead, home of one of western Canada’s first entomologists and the site of the first Dominion Entomological Laboratory in the Prairies. The site near Wawanesa, MB, is significant to the entomological research community for long-term scientific study. The late Norman Cridde collected local specimens which can now be found in many major insect collections throughout the world. In 1933, a few months before his death, the Manitoba Agricultural College conferred its highest honour on him, an honorary diploma in agriculture.

Arctic Entomology Course Offered

Dr. Rob Roughley, Entomology, along with several colleagues, taught a two-week course called "Arctic & Boreal Entomology" in August at the Churchill Northern Studies Centre in Churchill, Manitoba. Ten students from Ghana, Brazil, United States and Canada were enrolled in the course put forward by the University of the Arctic in Tromso, Norway. The course consisted of a survey of arctic habitats in the Churchill area, evening lectures and individual research projects of the students. The collecting done by the group has provided many specimens to be added to the J.B. Wallis Museum of Entomology in the Department of Entomology.

Food Science Called Upon for Dairy Expertise

Staff from the Department of Food Science offered a Thermal Processing course to industry and government representatives in Saskatoon, SK, Glenwood, AB, and here on campus in December. The University of Manitoba dairy pilot plant is one of two facilities in Canada where this training is offered and this is reflected in the growing interest and increased enrolment each year in the courses. Continued growth in enrolment is expected over the next few years. As well, the Department once again offered a short course on Dairy Technology to students from the University of Minnesota, Crookston Campus.

Agriculture Renewal Conference Takes to the Road

After hosting successful conferences in Brandon for the past three years, the Agriculture Renewal Alliance brought events this past fall to rural residents in St. Pierre, Pilot Mound, Arborg/Riverton and Dauphin areas. The Alliance hosted a series of evening dinner, speaker and discussion events with the theme "What does it mean to be successful in rural Manitoba?" Over 150 participants were able to attend this year’s events. Among the principal organizers were Dr. Rene Van Acker, Gary Martens, and Dr. Jane Froese of the Department of Plant Science.
Staff Changes

WARM WELCOMES

The Department of Plant Science welcomed two new faculty members in 2003. Dr. Claudio Stasolla is a new assistant professor whose research projects involve physiology and molecular biology of embryo development and in-vitro lignification of loblolly pine cells.

Dr. Genyi Li also joined Plant Science to work in genomics and construction of saturated molecular maps for canola and rapeseed. He holds the Associate Industrial Research Chair in oilseed research and development.

The Department of Agribusiness and Agricultural Economics welcomed Derek G. Brewin, whose background is in agribusiness and regional economics. His most recent research focuses on rural income growth, migration and the expansion of the hog industry in the U.S. He is teaching courses in agricultural finance.

Dr. Karmin O was appointed to the Department of Animal Science this past summer. Karmin is based out of the National Centre for Agri-Food Research in Medicine at the St. Boniface Hospital Research Centre. Her research focuses on the health-related benefits of nutraceuticals and functional foods, particularly in the areas of cardiovascular and renal disorders.

Dr. Denis Krause was also appointed to Animal Science this past year. Denis is a nutritional biochemist whose main research interests are in the microbiology of the digestive tract of farm animals as well as humans. He will be teaching microbiology and nutritional biochemistry.

David Orchard was hired as the Project Coordinator for the Centre for Agroecological Livestock Production Systems. David will coordinate all construction activities associated with the project at the Glenlea Research Station.

IN MEMORIAM

It is with deep regret that we announce the passing in July 2003 of Dr. Daryl Kraft, former head of the Department of Agribusiness and Agricultural Economics, at the age of 58 after a long battle with cancer. In the area of agricultural economics over the past 25 years, both nationally and provincially, Daryl emerged as an outstanding educator and a leading figure in his field. He had a gift for clear analysis and his work encompassed a broad range of substantial studies on rural real estate markets, agricultural production, various dimensions of agricultural policy, and international trade. His knowledge, research and accessibility made him an invaluable advisor to both farmers and government and he worked closely with industry, federal and provincial governments on numerous policies and projects. An Endowment Fund has been established in Daryl’s name.

THE DARYL F. KRAFT ENDOWMENT FUND

Colleagues, friends and family of Dr. Daryl F. Kraft have established an endowment/trust fund at the University of Manitoba to encourage clear and objective discussion of agricultural issues in Canada. The Fund will provide an opportunity for individuals and institutions to contribute to a program of activities in agribusiness management within the Department of Agribusiness and Agricultural Economics. The proceeds from this fund will be used to undertake two activities. First, an annual Daryl F. Kraft prize for the best undergraduate student paper in agricultural policy at the University of Manitoba; and a biennial Daryl F. Kraft lecture series on agricultural policy to be delivered by a prominent Canadian or international agricultural economist who embodies Daryl’s approach to education and communication.

If you wish to contribute to the fund, please contact Private Funding at (204) 474-9195 or 1-800-330-8066.
Awards and Achievements

STAFF AWARDS

Derek Brewin, Agribusiness and Agricultural Economics, was inducted into the Honor Society of Agriculture, Gamma Sigma Delta, at Pennsylvania State University.

Dr. Walter Bushuk, emeritus professor in Food Science, was appointed as a Member of the Order of Canada. Dr. Bushuk is internationally recognized as an innovator in the cereal chemistry industry.

Dr. Laurie Connor, Animal Science, received a Swine Stewardship Award from the Manitoba Pork Council. The award was presented for exemplary contributions to Manitoba’s pork industry through outstanding applications of teaching, extension services, and swine production research.

Dr. Martin Entz, Plant Science, was named a Fellow of the Canadian Society of Agronomy. The awards are presented annually to members of the CSA in recognition of their outstanding contributions to agronomy. A maximum of three Fellows are conferred each year.

Dr. Annemieke Farenhorst, Soil Science, received the prestigious Rh Award for Outstanding Contributions to Scholarship and Research, an award that honours a scientist at the early stages of his or her career. Dr. Farenhorst received the Award in the Interdisciplinary category.

Sandra Fuller, Plant Science, received the inaugural CanAmera Foods-NSERC Innovation Award. This award formally recognizes and financially rewards innovation among the research support staff members in the Department of Plant Science. Sandra received a cash award and her name was engraved on a plaque displayed in the Department.

Dr. Bill Guenter, Animal Science, was made a Fellow of the Poultry Science Association, the highest honour bestowed upon poultry researchers from around the world. Dr. Guenter was also awarded the Dr. and Mrs. D.R. Campbell Outreach Award for his countless hours in community service with the poultry and hog industries.

Dr. James House, Animal Science, was also a recipient of an Rh Award for Outstanding Contributions to Scholarship and Research. He was honoured in the Applied Sciences category.

Dr. Digvir Jayas, Biosystems Engineering, received the Canadian Institute of Food Science and Technology’s 2003 Institute Award. This award is given annually to an individual who has made an outstanding contribution to the Institute. It is the highest honour bestowed by the organization each year.

Dr. Gary Johnson, Agribusiness and Agricultural Economics, was honoured with a University of Manitoba Outstanding Teacher Award at the 11th annual Students’ Teacher Recognition Reception. He was also chosen as Teacher of the Year for the 2002-2003 academic year by the Faculty of Agriculture Students’ Organization.

The late Dr. Daryl Kraft, former Head of the Department of Agribusiness and Agricultural Economics, was presented with a Teaching Award of Merit from the National Association of Colleges and Teachers of Agriculture.

Dr. Garland Laliberte, Biosystems Engineering, received the Association of Professional Engineers and Geologists of Manitoba Honorary Life Membership.

Gary Martens, Plant Science, won the University of Manitoba Outreach Award for the Faculty of Agricultural and Food Sciences, Manitoba Agriculture. Gary is actively involved in the Certified Crop
Adviser program and has performed many community presentations around Manitoba on crop management issues. He has played an integral role in the Crop Diagnostics School and the Agriculture Renewal Alliance conferences, and advises frequently on many agronomic projects.

Dr. Loreen Onischuk, Animal Science, was chosen as the 2002-2003 Teacher of the Year by both first and second year Agriculture Diploma students. This was one of only three previous occasions in which the same instructor has been selected by both classes for the award.

Dr. Geza Racz, Soil Science, was named Professor Emeritus by the University of Manitoba. As a soil chemist with the Faculty for the past 42 years, Geza’s contributions include adapting soil test methods and soil management practices to Manitoba conditions.

Dr. Steve Stothers, senior scholar in the Animal Science, received a Life Membership from the Manitoba Institute of Agrologists.

Dr. Terry Galloway was immortalized by having a new species of mite named after him. The mite, Granulocheyletus gallowayi Fain, 2003, was named by a Belgian scientist. Dr Galloway has an international reputation in the field of parasites (such as fleas, lice and mites) of birds and mammals. Granulocheyletus gallowayi is a parasite of penguins, and was collected by Dr. Galloway in New Zealand. This species is the nineteenth new species to be named after a member of the Department of Entomology.

Dr. Rene Van Acker, Plant Science, was awarded the Canadian Weed Science Society Excellence in Weed Science Award. Sponsored by Dow AgroSciences, this award recognizes excellence among active scientists, educators, regulatory and extension personnel in the area of weed science in Canada.

Diane Wreford, Dean’s Office, was named Distinguished Agrologist for 2003 by the Manitoba Institute of Agrologists.

**STUDENT AWARDS**
(These and other student awards are compiled in the Honors and Awards section on page 42)

Janice Cuthbert, Plant Science, received the Young Scientists Footprints Award in honour of Watson and Crick’s discovery of the DNA double helix. The prestigious award is sponsored by the Council of Biotechnology Information Canada and judged by Genome Prairie.

Kris Frederickson, Biosystems Engineering, was named the Youth Recipient of the prestigious National Aboriginal Achievement Award, a top honour that is conferred on just 14 people each year. Only one youth recipient is named per year.

Danielle Hobday, Animal Science, was awarded a Ajinomoto Heartland Scholarship/Halchemix Scholarship from Halchemix Canada Inc. for her graduate work in amino acid metabolism.

Chithra Karunakaran, Biosystems Engineering, received the 2003 Distinguished Doctoral Dissertation Award from the Faculty of Graduate Studies in the Natural Sciences and Engineering category and first prize in the Canadian Society for Engineering in Agricultural, Food and Biological Systems’ 2003 PhD Thesis Award competition.

Myron Kroeker, Soil Science, received a J. Fielding Reed PPI Fellowship. The fellowship is named in honour of Dr. J. Fielding Reed, former President of PPI and is given to an outstanding student in soil or plant science who is advancing the appropriate use of P and K in crop production systems.

Parthiban Muthukumarasamy, Food Science, received the Canadian Meat Science Association (CMSA)/Percy Gitelman Memorial Scholarship.

Monica Purnama, Food Science, was awarded a CIFST $1000 McCormick Canada Undergraduate Scholarship as well as an undergraduate scholarship from the Institute of Food Technologists Foundation.
Appendices

Teaching and Research Staff

Officers of Administration
E. (Emőke) Szathmáry, Ph.D., President of the University
R. (Robert) Kerr, Ph.D., Vice-President (Academic)
J.C. (Joanne) Keselman, Ph.D., Vice-President (Research)
E. (Elaine) Goldie, Vice-President (External)
M.W. (Michael) McAdam, C.A., M.B.A., Vice-President (Administration)

D.J. (Deborah) McCallum, B.Sc., Vice-President (Administration)

Faculty of Agricultural and Food Sciences

Administration
H.F. (Harold) Bjarnason, Ph.D., Dean of Faculty
B.L. (Bernie) Dronzek, Ph.D., Associate Dean
R. (Rachael) Scarth, Ph.D. Associate Dean
M.K (Merv) Pritchard, Ph.D., Director, School of Agriculture

Deans Emeriti
J.I. Elliot, Ph.D.
R.C. McGinnis, Ph.D.
L.H. Shebeski, M.Sc., LL.D.

DEPARTMENT OF AGRIBUSINESS AND AGRICULTURAL ECONOMICS

Professorial and Teaching Staff
D.F. (Daryl) Kraft, Ph.D., Professor and Head, Agricultural Policy
M.S. (Milton) Boyd, Ph.D., Professor and Acting Head, Marketing, Agribusiness, Risk Management, Financial and Derivative Markets
D.G. (Derek) Brewin, M.Sc., Lecturer, Agribusiness and Regional Economics
J.G. (Jared) Carlbarg, Ph.D., Assistant Professor, Agribusiness, Industrial Organization, Marketing
B.T. (Barry) Coyle, Ph.D., Associate Professor, International Trade, Production Economics, Econometrics
G.V. (Gary) Johnson, Ph.D., Associate Professor, Natural Resource and Environmental Economics, Institutional Economics
R.B. (Reene) Kim, Ph.D., Assistant Professor, International Trade and Marketing, Marketing Research Methods
J.A. (Jim) MacMillan, Ph.D., Professor, Resource Economics, Agribusiness, Rural Development
B.T. (Brian) Oleson, Ph.D., Professor, Agricultural Economics, Strategic Planning and Policy, Government Relations, Economic Development, Agribusiness Chair in Cooperatives and Group Marketing
J.J. (James) Rude, Ph.D., Assistant Professor, International Trade, Marketing, Price Analysis, Quantitative Methods

Research and Other Staff
J.A.L. (John) Cranfield, Ph.D., Adjunct Professor (University of Guelph), Applied Demand Analysis, Marketing and Market Analysis, International Trade, Quantitative Methods
E.W. (Ed) Tychniewicz, Ph.D., Adjunct Professor (University of Manitoba, I.H. Asper School of Business), Sustainable Development, Agricultural and Transportation Policy, S.-J. (Sam) Yoon, Ph.D., Visiting Professor (Dankook University, South Korea)

DEPARTMENT OF ANIMAL SCIENCE

Professorial and Teaching Staff
K.M. (Karin) Wittenberg, Ph.D., Professor and Head, Cattle Nutrition (Forage Utilization)
G.H. (Gary) Crow, Ph.D., Associate Professor and Associate Head, Animal Genetics
L.D. (Lloyd) Campbell, Ph.D., Professor, Nutrition (Poultry)
M.L. (Laurie) Connors, Ph.D., Professor, Reproductive Physiology
J.I. (James) Rude, Ph.D., Dean Emeritus, Swine Nutrition
W. (Bill) Guenter, Ph.D., Professor, Poultry Nutrition and Management
J.D. (James) House, Ph.D., Associate Professor, Monogastric Nutrition and Nutritional Biochemistry
A.D. (Alma) Kennedy, Ph.D., Associate Professor, Physiology
P.A. (Peter) Kondra, Ph.D., Professor Emeritus, Poultry Breeding and Physiology
D.O. (Denis) Krause, Ph.D., Assistant Professor, Gut Microbiology
N.J. (Nora) Lewis, Ph.D., Associate Professor, Animal Behaviour and Welfare
R.R. (Ron) Marquardt, Ph.D., Professor Emeritus, Biochemistry and Toxicology
C.M. (Martin) Nyachoti, Ph.D., Assistant Professor, Swine Nutrition and Management
K. (Karmi) O, Ph.D., Associate Professor, Nutritional Biochemistry, Functional Foods and Nutraceuticals
K.H. (Kim) Ominski, Ph.D., Assistant Professor, Beef Cattle Nutrition and Management
L.A. (Loreen) Onischuk, Ph.D., Senior Instructor
R.J. (Bob) Parker, Ph.D., Professor Emeritus, Genetics
J.C.B. (Kees) Plaizier, Ph.D., Assistant Professor, Ruminant Nutrition
M.E. (Marvin) Seale, Ph.D., Professor Emeritus, Animal Breeding
E.W. (Elwood) Stringam, Ph.D., Professor Emeritus, Animal Breeding and Reproduction

Research and Other Staff
R.J. (Rob) Berry, Ph.D., Research Associate, Animal Behaviour
D. (Dinah) Boadi, Ph.D., Research Associate, Nutrition
D. (Deanne) Fulawka, M.Sc., Technical Assistant, Dairy and Beef Cattle Research

1 Resigned June 2003
2 Appointed November 2003
3 Deceased July 2003
4 Appointed July 2003
5 Appointed August 2003
6 Appointed July 2003
7 Appointed July 2003
8 Appointment ended September 2003
9 Appointed September 2003
A. (Asseem) Golian, Ph.D., Research Associate, Poultry Nutrition
O. (Femi) Omogbenigun, M.Sc., Research Associate, Swine Nutrition
H. (Holly) Spicer, Technical Assistant, Environmental Physiology
H. (Hayfird) Tabiri, Ph.D., Post-Doctoral Fellow, Swine Nutrition
S. (Steiner) Wamnes, B.Sc., Research Associate, Animal Behaviour
W.P. (Paul) McCaughey, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada, Brandon), Forage Utilization
J.N.B. (Jap) Shrestha, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada, Lennoxville), Animal Genetics
B.A. (Bogdan) Slominski, Ph.D., Professional Associate and Adjunct Professor, Poultry Nutrition
J. (Julie) Small, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada, Brandon), Reproductive Physiology

DEPARTMENT OF BIOSYSTEMS ENGINEERING

Professorial and Teaching Staff
Q. (Chong) Zhang, Ph.D., Professor and Head, Environment for Animal and Plant Production Systems, Odour Control, Bulk Solids Handling
M.G. (Ron), Britton, Ph.D., Professor and Associate Dean (Design Education) of Engineering, Light-Frame Buildings
S. (Stefan) Cenkowski, Ph.D., Professor, Food and Bioprocessing Engineering
Y (Ying) Chen, Ph.D., Associate Professor, Power and Machinery
N. (Nazim) Cicek, Ph.D., Assistant Professor, Environmental Engineering
K. (Kris) Dick, Ph.D., Instructor and Adjunct Professor, Light-Frame Buildings
D. (Derek) Inglish, B.Sc., Instructor, Grain Storage, Instrumentation
D.S. (Digvir) Jayas, Ph.D., Canada Research Chair in Stored-Grain Ecosystems and Associate Vice-President (Research), Instrumentation, Crop and Food Processing, Image Processing, Automation
D.J. (Don) Johnson, B.S.A., Instructor, Power and Machinery
G.E. (Garland) Laliberte, Ph.D., Dean Emeritus, Soil and Water Engineering
D.D. (Danny) Mann, Ph.D., Assistant Professor, Power and Machinery
W.E. (Bill) Muir, Ph.D., Professor Emeritus, Grain Storage
J. (Jitendra) Paliwal, Ph.D., Assistant Professor, Machine-Vision, Spectroscopy, Artificial Neural Networks, and Grain Storage
J.D. (Jim) Philp, B.S.A., Lecturer, Power and Machinery
R. (Ranjit) Sri Ranjan, Ph.D., Associate Professor, Soil and Water Engineering

Research and Other Staff
R. (Ray) Hoemsen, M.Sc., Adjunct Professor (Manitoba Institute of Child Health), Power and Machinery
D. (David) Levin, Ph.D., Visiting Academic (University of Victoria), Molecular Virology, Entomology, Biotechnology
R. (Bob) Parsons, M.B.A., Adjunct Professor (Manitoba Energy Development Initiative of Manitoba), Bioprocessing
D.S. (Don) Petkau, M.B.A., Adjunct Professor, Power and Machinery
S. (Steve) Symons, Ph.D., Adjunct Professor (Canadian Grain Commission), Grain Quality
N.D.G. (Noel) White, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Grain Storage

DEPARTMENT OF ENTOMOLOGY

Professorial and Teaching Staff
N.J. (Neil) Holliday, Ph.D., Professor and Head, Pest Management Crop Insects, Ecology
R.A. (Reinhart) Brust, Ph.D., Emeritus Professor, Biting Fly Ecology, Medical Entomology
R.W. (Robert) Currie, Ph.D., Associate Professor, Bee Physiology and Behaviour, Pollination
T.D. (Terry) Galloway, Ph.D., Professor, Livestock Entomology, Ectoparasites, Aquatic Entomology
S.C. (Cameron) Jay, Ph.D., Emeritus Professor, Bee Biology
P.A. (Patricia) MacKay, Ph.D., Senior Scholar, Insect Physiology, Aphid Ecology and Behaviour
R.E. (Robert) Roughley, Ph.D., Professor, Water Beetle Systematics

Research and Other Staff
G. (Gail) Anderson, Ph.D., Adjunct Professor (Simon Fraser University), Forensic Entomology
R.A. (Robert) Anderson, Ph.D., Adjunct Professor (University of Winnipeg), Biting Fly Biology
A.B. (Bruce) Broadbent, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada, London), Biological Control
P.G. (Paul) Fields, Ph.D., Adjunct Professor (Agricultural and Agri-Food Canada, Winnipeg), Stored Products Entomology
U. (Ulrich) Kuhlmann, Ph.D., Adjunct Professor (CABI Bioscience Centre, Delémont, Switzerland), Biological Control
R.J. (Robert) Lamb, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada, Winnipeg [Retired]), Systems Biology
L.R. (Robbin) Lindsay, Ph.D., Adjunct Professor (Canadian Science Centre for Human and Animal Health, Winnipeg), Medical Entomology
P.G. (Peter) Mason, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada, Ottawa), Biological Control
M.J. (Michael) Paterson, Ph.D., Adjunct Professor (Department of Fisheries and Oceans, Winnipeg), Aquatic Ecology
C.L. (Cheryl) Podemski, Ph.D., Adjunct Professor (Department of Fisheries and Oceans, Winnipeg), Ecology of Aquatic Invertebrates
D.M. (David) Rosenberg, Ph.D., Adjunct Professor (Department of Fisheries and Oceans, Winnipeg [Retired]), Aquatic Insect Ecology
H.V. (Helena) Shaverdo, Ph.D., Post Doctoral Fellow, Water Beetle Systematics
J.J. (Juliana) Soroka, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada, Saskatoon), Ecological Crop Protection
D. (Désirée) Vanderwel, Ph.D., Adjunct Professor (University of Winnipeg), Insect Biochemistry
A.R. (Richard) Westwood, Ph.D., Adjunct Professor (University of Winnipeg), Forest Entomology
N.D.G. (Noel) White, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada, Winnipeg), Stored Products Entomology

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10 Appointment ended November 2003
11 Appointment ended November 2003
12 Appointment ended December 2003
13 Appointed September 2003
DEPARTMENT OF FOOD SCIENCE

Professorial and Teaching Staff

R.A. (Rick) Holley, Ph.D., Professor and Head, Food Microbiology
S.D. (Sue) Arnfield, Ph.D., Professor, Food Proteins
T. (Trust) Beta, Ph.D. Assistant Professor, Food Carbohydrates
G. (Greg) Blank, Ph.D. Professor, Food Microbiology and Fermentation
W. (Walter) Bushuk, Ph.D., Professor Emeritus, Cereal Chemistry
J.H. (Jung) Han, Ph.D., Assistant Professor, Food Processing
A.W. (Arnie) Hydamaka, Ph.D., Instructor, Water and Waste Management
H.D. (Harry) Sapirstein, Ph.D., Adjunct Professor, Plant Physiology and Molecular Biology
M.G. (Martin) Scanlon, Ph.D., Professor, Food Processing
G. (Joe) Mazza, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Food Chemistry and Processing
S. (Shin) Nam, M.Sc., Research Associate, Food Carbohydrates
G.H. (Gil Hyung) Ryu, Ph.D., Adjunct Professor (San Ju National University, South Korea), Extrusion Cooking

Visiting Scientists, Scholars, Post-Doctoral Fellows

R. (Roberto) Buffo, Ph.D., Post-Doctoral Fellow, Microencapsulation
A. (Athina) Lazaridou, Ph.D., Post-Doctoral Fellow, Carbohydrate Chemistry
Z. (Zhiqiang) Liu, Ph.D., Post-Doctoral Fellow, Polymer Engineering
H. (Hamid) Naem, Ph.D., Post-Doctoral Fellow, Wheat Protein Chemistry and Genetics
M. (Mingwei) Wang, Ph.D., Post-Doctoral Fellow, Cereal Science and Carbohydrate Chemistry

Research and Other Staff

S. (Sangamesh) Angadi, Ph.D., Research Associate, Agrometeorology and Agronomy
E.J. (Eduardo) Cacace, M.Sc., Research Associate, Food Chemistry
J.E. (Jim) Dexter, Ph.D., Adjunct Professor (Canadian Grain Commission), Cereal Chemistry
J. (Janie) Dubois, Ph.D., Adjunct Professor (National Research Council), Transmissible Encephalopathies
H. (Hussein) Elmehi, Ph.D., Research Associate, Food Physics
V. (Vic) Gannon, Ph.D., Adjunct Professor (Animal Diseases Research Institute, Health Canada), Microbiology
T.Y. (Tat Yee) Guan, M.Sc., Research Associate, Microbiology
D. (David) Hatcher, Ph.D., Adjunct Professor (Canadian Grain Commission), Cereal Chemistry
A. (Akhtar) Hussain, Ph.D., Research Associate, Cereal Chemistry
M. (Marta) Izydorczyk, Ph.D., Adjunct Professor (Canadian Grain Commission), Carbohydrate Chemistry
M.I.P. (Miklos) Kovacs, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Cereal Chemistry
A. (Alice) Kuo, M.Sc. Research Associate, Food Processing
Z. (Zhiqiang) Liu, Ph.D., Research Associate, Polymer Engineering
A.W. (Sandy) MacGregor, Ph.D., Adjunct Professor (Canadian Grain Commission), Cereal Chemistry
G. (Joe) Mazza, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Food Chemistry and Processing
S. (Shin) Nam, M.Sc., Research Associate, Food Carbohydrates
G.H. (Gil Hyung) Ryu, Ph.D., Adjunct Professor (San Ju National University, South Korea), Extrusion Cooking

Visiting Scientists, Scholars, Post-Doctoral Fellows

R. (Roberto) Buffo, Ph.D., Post-Doctoral Fellow, Microencapsulation
A. (Athina) Lazaridou, Ph.D., Post-Doctoral Fellow, Carbohydrate Chemistry
Z. (Zhiqiang) Liu, Ph.D., Post-Doctoral Fellow, Polymer Engineering
H. (Hamid) Naem, Ph.D., Post-Doctoral Fellow, Wheat Protein Chemistry and Genetics
M. (Mingwei) Wang, Ph.D., Post-Doctoral Fellow, Cereal Science and Carbohydrate Chemistry

DEPARTMENT OF PLANT SCIENCE

Professorial and Teaching Staff

G.M. (Murray) Ballance, Ph.D., Professor and Head, Plant Biochemistry and Molecular Biology
P.B.E. (Peter) McVetty, Ph.D., Professor, Plant Breeding and Genetics
M.I. (Mavis) Bollman, Ph.D., Sessional Instructor, Genetics and Physiology
A.L. (Anita) Brûlé-Babel, Ph.D., Professor, Cereal Chemistry
M.H. (Martin) Entz, Ph.D., Professor, Plant Breeding and Genetics, Oilseed Crops
L. (Lakhdar) Lamari, Ph.D., Professor, Plant Physiology and Molecular Biology
R. (Rachael) Scarth, Ph.D., Professor, Weed Science, Crop Management
J.K. (Kevin) Vessey, Ph.D., Professor, Plant-Microbe Interactions

Research and Other Staff

H.U. (Hafiz) Ahmed, Ph.D., Research Associate, Plant Pathology
P.D. (Doug) Brown, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Plant Breeding
G. (Genyi) Li, Ph.D., Assistant Professor, Brassica Genomics
G.B. (Gary) Martens, B.Sc., CCA, Instructor II, Crop Production
R.C. (Rene) Van Acker, Ph.D., Associate Professor, Weed Science, Crop Management

14 Reduced appointment July 2003
15 Appointed July 2003
16 Appointment ended October 2003
17 Appointed May 2003
18 Appointment ended October 2003
19 Reappointed February 2003
20 Reappointed January 2003
21 Appointment ended September 2003
22 Appointment ended April 2003 (Post-Doctoral Fellow), appointed October 2003 (Research Associate)
23 Appointment ended August 2003
24 Resigned March 2003
25 Appointed August 2003
26 Appointed December 2003
27 Appointed August 2003
28 Research Study Leave January to June 2003
29 Research Study Leave January to June 2004
30 Research Study Leave January to June 2003
31 Research Study Leave January to June 2004
32 Appointed June 2003
33 Appointment ended April 2003
34 Appointed May 2003
C.G. (Clayton) Campbell, Ph.D., Adjunct Professor (Kade Research Ltd.), Plant Breeding
J. (James) Chong, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Plant Pathology
J.K. (Jim) Daun, Ph.D., Adjunct Professor (Grain Research Laboratory, Canadian Grain Commission), Cereal Chemistry
D.A. (Doug) Derksen, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Weed Ecology
A. (Abdelbasset) El Hadrami, Ph.D., Post-Doctoral Fellow, Plant Pathology15
H. (Houman) Fei, Ph.D., Post-Doctoral Fellow, Plant Physiology16
T.G. (Tom) Fetch, Jr., Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Plant Pathology
S.L. (Stephen) Fox, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Plant Breeding17
L.F. (Lyle) Friesen, M.Sc., Research Associate, Weed Science
D.G. (Gavin) Humphreys, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Wheat Breeding
A.U. (Abir) Igamberdiev, Ph.D., Research Associate, Plant Physiology and Biochemistry
V. (Veronica (Katerina)) Lira Ruan, Ph. D., Post-Doctoral Fellow, Plant Physiology and Biochemistry18
N. (Nathalie) Manac, Ph.D., Post-Doctoral Fellow, Plant Physiology and Molecular Biology
A. (Allison) Schoofs, M.Sc., Research Associate, Agronomy
C. (Curt) McCartney, Ph.D., Research Associate, Plant Breeding and Oilseed Crops19
O. (Orla) Nazarko, M.Sc., Research Associate, Agronomy20
K. Parveen, Ph.D., Research Associate, Plant-Microbe Interactions21
K.Y. (Khalid) Rashid, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Oilseed Crops Pathology
F. (Fawzi) Razem, Ph.D., Post-Doctoral Fellow, Biochemistry22
A. (Allison) Schoofs, M.Sc., Research Associate, Agronomy
C. (Csaba) Seregélyes, Ph.D., Post-Doctoral Fellow, Stress Physiology
S.R. (Ray) Smith, Jr., Ph.D., Adjunct Professor (Virginia Tech University), Forage Breeding and Seed Production
D.J. (Daryl) Somers, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Biotechnology
A.M. (Andy) Tekauz, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Plant Pathology
O. (Owen) Wally, M.Sc., Research Associate, Molecular Plant Pathology23
A.G. (Allen) Xue, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Plant Pathology
C.D. (Carla) Zeimer, Ph.D., Post-Doctoral Fellow, Plant-Microbe Interactions
J. (Jinxiu) Zhang, Ph.D., Research Associate, Molecular Plant Pathology24

DEPARTMENT OF SOIL SCIENCE

Professorial and Teaching Staff
B. (Bernie) L. Dronzek, Ph.D., Professor and Acting Head of Department
O. O. (Wole) Akinremi, Ph.D., Assistant Professor, Soil Chemistry and Fertility
A. (Abbi) Igamberdiev, Ph.D., Research Associate, Plant Physiology and Biochemistry
D.N. (Don) Flaten, Ph.D., Associate Professor, Soil Chemistry and Fertility
T.B. (Tee Boon) Goh, Ph.D., Professor, Soil Chemistry and Mineralogy
D. A. (David) Lobb, Ph.D., Assistant Professor, Landscape Ecology and Biophysical Processes
M. (Mario) Tenuta, Ph.D., Assistant Professor, Soil Microbiology
G.J. (Geza) Racz, Ph.D., Senior Scholar, Soil Chemistry and Fertility
C.F. (Carl) Shyaykewich, Ph.D., Senior Scholar, Soil Physics and Agrometeorology
R.J. (Robert) Soper, Ph.D., Professor Emeritus, Soil Chemistry and Fertility

Associated Staff - Agriculture and Agri-Food Canada
R.G. (Robert) Eilers, M.Sc., Pedologist, Adjunct Professor, Head of Manitoba Land Resource Unit, Soil and Water Quality
W. (Walter) Fraser, M.Sc., Pedologist, GIS and National Soil Database
H. (Hugo) Veldhuis, M.Sc., Pedologist, Forest Soils

Associated Staff - Manitoba Agriculture and Food
P. (Peter) Haluschak, M.Sc., Pedologist, Soil Chemistry
G.P.W. (Glenn) Podolsky, B.Sc., Pedologist, Soil Classification

Research and Other Staff
D. E. (Danny) Blair, Ph.D., Adjunct Professor (University of Winnipeg), Meteorology
L.G. (Les) Fuller, Ph.D., Adjunct Professor (University of Alberta), Landscapes-Biophysical Processes
C.A. (Cynthia) Grant, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Soil Fertility and Management
P. (Paul) Holloway, Ph.D., Adjunct Professor (University of Winnipeg), Biology
T. (Ted) Huffman, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Soil Scientist
R. (Rigas) Karamanos, Ph.D., Adjunct Professor (Western Co-operative Fertilizers Ltd.), Research and Development Manager
J. (Guy) Lafond, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Crop Stressing Systems
A. (Alain) Moulin, Ph.D., Adjunct Professor (Agriculture and Agri-Food Canada), Soil Management/Conservation Scientist
R.L. (Rick) Raddatz, M.Sc., Adjunct Professor (Environment Canada), Meteorology
G.A. (Gary) Stern, Ph.D., Adjunct Professor (Freshwater Institute, Fisheries and Oceans), Environmental Chemistry

SCHOOL OF AGRICULTURE

Teaching Staff
S.E. (Scott) Corbett, Dip. Agric., Lecturer, Farm Management
L.K. (Lorraine) Korosoli, Dip. Agric., Lecturer, Farm Management
B. (Barbara) Metrycki, B.A., Communications Instructor
G. L. (Gabi) Sponagel-Ridder, B.S.A., Lecturer, Farm Management
E.J. (Ernie) Steeves, Dip. Agric., Lecturer, Farm Management

39 Appointment ended March 2003
40 Appointment ended April 2003
41 Resigned June 2003
42 Appointed May 2003
43 Appointment ended November 2003
44 Appointed January 2003
45 Leave of Absence July 2001 to June 2004
Current Research and Special Projects

DEPARTMENT OF AGRIBUSINESS AND AGRICULTURAL ECONOMICS

M.S. Boyd
Quantitative analysis of Japanese consumers’ willingness to pay for Canadian pork
Analysis of consumer preferences for genetically modified Canadian wheat in export markets
Analysis of beef brand management
Analysis of international agricultural price transmission
Price asymmetry in commodity futures and stock markets
Price relationships between stock and commodity prices
Risk management and value at risk
International marketing research

D.G. Brewin
Analysis of the competitive position of the Canadian Wheat Board, using game theory
Research into Canadian rural income growth

J.G. Carlberg
Comparison of Manitoba/North Dakota land values in the Red River Valley
Canada-Mexico trade under NAFTA
Success factors for new generation cooperatives
Evolutionary game theory and coalition formation
New generation cooperative development in Western Canada
Estimating effects of land characteristics upon land values
The political economy of demand for regulation in farmland markets
Linkage between safety nets and crop insurance

B.T. Coyle
Risk and duality models: statics, dynamics, price uncertainty and yield uncertainty
Econometric duality models incorporating risk and government program for Manitoba Crop Agriculture
Econometric models or crop acreage and yield decision for Manitoba

C.W. Grant
Economic impacts of hog production in Manitoba communities/regions
Exchange traded financial offsets to gaps in the price movements of underlying assets of options contracts
Under-the-counter (UTC) options
The defining of an economic drought index
Financial risk from first principles
Water economics - a review of water issues, methods, and gaps in the Canadian agricultural sector

G.V. Johnson
Economics of Knoll Restoration - a preliminary study
Modelling of economic and environmental impacts of large hog operations

R.B. Kim
Analysis of international agricultural price transmission
Quantitative analysis of Japanese consumers’ willingness to pay for Canadian pork
Analysis of consumer preferences for genetically modified Canadian wheat in export markets
Quantitative analysis of Korean beef supply chain: survey study at merchandiser-level
Analysis of beef brand management

J.A. MacMillan
Economic impacts of hog production in Manitoba communities/regions
Economic impacts of potato production in Manitoba

B.T. Oleson
Organizational change and cooperatives in the Australian grain industry
Grain quality and the role of Kernel Visual Distinguishability (KVD)
Cooperative governance

J.I. Rude
Measuring trade liberalization in the Canadian poultry sector with a bilateral monopoly model
Measuring market power in Canadian meat processing sector with a cost function approach
Assessing premiums for multiple-product crop insurance
An examination of the political economy of anti-dumping duties

DEPARTMENT OF ANIMAL SCIENCE

L.D. Campbell
Determination of digestible energy and digestible amino acids in feedstuffs

M.L. Connor
Influence of lactational photoperiod on piglet and sow performance
Effectiveness of supplemental dietary enzymes on sow performance

G.H. Crow
Genetic effects on reproductive efficiency of beef cattle
Utilization of forage-based rations for the development of beef bulls

W. Guenter
Development of new generation enzymes for soybean meal diets
Efficacy of enzymes in broiler and turkey diets (wheat, barley, canola, soy and corn)
Poultry barn workers health status
Enrichment of chicken eggs with folic acid
Nutritional benefits of folic acid fortified eggs in the diet of young women

J.D. House
Regulation of sulfur amino acid metabolism in the early weaned piglet, in humans and in laboratory animals
The development of animal-based functional foods: folate fortification of table eggs
Elucidation of decontamination strategies for mycotoxin-contaminated grains: chemical and physical decontamination of barley
The effect of agronomic practices on the feeding quality of prairie crops
Sulfur fertility and amino acid composition of peas and barley
Evaluation of the nutrient composition of Manitoba-grown corn
Development of methods for the determination of thiols in natural waters
Determination of role of thiols in mercury speciation and environmental risk

A.D. Kennedy
Winter feeding strategies for beef cattle: effects of evening feeding and extended daylength on body temperatures
The effects of light, day length, time of feeding and circadian rhythms on cattle
Use of infrared thermography to detect mastitis

**D.O. Krause**
The effect of lipopolysaccharides on sub-acute ruminal acidosis
Rumen methanogenesis and methane mitigation in cattle fed ionophores
Alternatives to antibiotics in pigs

**N.J. Lewis**
Transportation of early-weaned pigs
Joint problems in gilts and sows in gestation housing types differing in exercise and socialization opportunities
Feeding frustration and its effects on aggression, abnormal behaviour and stress
Failure of passive transfer in pigs

**C.M. Nyachoti**
Enhancing dietary phosphorus utilization in swine
Evaluation of the nutritive value of Manitoba-grown corn and its effects on pork quality characteristics
Effect of dietary protein level on performance and indicators of enteric health in early-weaned pigs

**Karmin O**
Mechanisms of homocysteine-induced nuclear factor kappa-B activation in endothelial cells
Nutraceuticals and functional food in health

**K.H. Ominski**
Use of fortified hay cubes as a delivery system for nutrients and feed additives to cattle on forage-based rations
Environmentally and economically sustainable management practices for forage-based beef production systems
Utilization of forage-based rations for beef bulls
Optimizing harvesting and processing parameters to maximize meat or milk production using large bale forage systems
Surface water quality associated with overwintering cattle
Best management practices to improve environmental sustainability and productivity of grassland systems using hog manure
Reducing *Salmonella* transfer from manure to the environment

**J.C.B. Plaizier**
Impact of subacute ruminal acidosis on health and production of dairy cows
Preventing sub-acute ruminal acidosis in dairy cows fed barley based diets
Improving nutrient utilization by optimization of feeding time and feeding patterns

**K.M. Wittenberg**
Energy balance studies in free-ranging cattle
Measurement of enteric methane emissions by cattle
Use of plant alkanes to understand and influence animal grazing behaviour

**DEPARTMENT OF BIOSYSTEMS ENGINEERING**

**M.G. Britton**
Innovative design of manure storage tanks
Dynamic forces on grain bins during emptying
Delivery of safety message via electronic media
Incorporating design into undergraduate engineering education

**S. Cenkowski**
Dehydration of distillers grain in superheated steam
Superheated steam treatment of mycotoxin contaminated grain
Superheated steam processing technology for Asian noodles
Extraction of oil from sea buckthorn pulp and seeds
Mathematical modelling of high intensity infrared processing of peas

**Y. Chen**
Soil-tool-straw interaction
Different tillage systems
Traction devices
Soil-tool interaction associated with manure injection
Odour, manure exposure and crop response following manure injection
Livestock mortalities composting

**N. Cicel**
Wastewater treatment on Manitoba First Nations communities using a membrane bioreactor
Membrane assisted autotrophic denitrification of water and waste water
Sampling of Greenhouse gases from liquid surfaces
Effect of wastewater treatment on endocrine disrupting substances
Landfill leachate treatment using membrane bioreactors
Biohydrogen production with a novel membrane assisted bio-fermentation system

**K. Dick**
Lateral bracing of wood trusses
Structural behaviour of straw bale walls

**D.S. Jayas**
Machine vision for grain classification
Soft X-ray imaging for detection of insects in grain samples
Grain handling, drying and storage

**D.D. Mann**
Ergonomic evaluation of agricultural guidance systems
Biofiltration for odour control
Mechanical harvesting of native berry crops

**W.E. Muir**
Respiration and deterioration of stored canola
Low temperature control of stored product insects
Computer models of stored-grain ecosystems

**J. Paliwal**
Using Liquid Crystal Tunable Filter (LCTF) based spectroscopy systems for constituent analysis of cereal grains
Using near-infrared (NIR) spectroscopy and soft X-rays for detection of insects in grain
Correcting discrepancies in NIR spectral data of cereal grains that arise due to particle size variations
Development and evaluation of neural network architectures for cereal grain classification

**R. Sri Ranjan**
The use of electrokinetics in creating effective barriers to contaminants
Time-domain reflectometry applications in soils
Measuring seepage beneath manure storage lagoons in Manitoba
Development of a membrane-irrigation system
DEPARTMENT OF ENTOMOLOGY

R.W. Currie
Regulation of reproduction in bees
Importance of floral odour as an attractant to honey bees
Control measures for the varroa mite, a parasite of honey bees
Fumigation treatments for the varroa mite in wintering buildings and in colonies
Effect of environmental manipulation on varroa survival in winter
Regulation of queen replacement in honey bee colonies
Impact of honey bee nutrition on winter survival of colonies
Selecting honey bee stock for resistance to parasites

T.D. Galloway
Waste tires as a source of mosquitoes in Manitoba, with a focus on known vectors of West Nile virus
Hymenopterous parasitoids of horse fly eggs in Manitoba
Impact and control of horn flies on cattle
Biodiversity of ectoparasites of birds and mammals
Impact of forest burning on diversity and prevalence of small mammal fleas in New South Wales, Australia
Taxonomy of flea larvae
Biodiversity of feather mites on birds
Occurrence and distribution of *Ixodes scapularis* and *Borrelia burgdorferi* in Manitoba and Saskatchewan
Diversity and sources of caddisflies in Winnipeg River hydroelectricity generating stations
Invasion of pig carcasses by insects and relevance to forensic investigations

N.J. Holliday
Management of root maggots in canola
Integrated management of seed alfalfa pest insects
Biological control of root pests
Biological control of purple loosestrife
Insect pests of potatoes
Gamma irradiation for control of hessian flies in hay
Effects of forest management and forest succession on arthropods
Biology of Dutch elm disease vectors
Ecology of carabid beetles of beaches
Effects of crop management systems on insect predators

R.E. Roughley
Revision of adult and larval stages of Dytiscidae (Coleoptera)
Higher classification of Dytiscidae
Curator, J.B. Wallis of Entomology
Tallgrass prairie biodiversity and conservation
Evolution and classification of insects
Insects of Manitoba catalogue and database project
Manitoba insect survey
Revision of Costa Rican aquatic Coleoptera
Biogeography of the Florida Keys

DEPARTMENT OF SCIENCE

S.D. Arntfield
Investigation of the impact of polysaccharides on the gelation and emulsification properties of canola and pulse proteins
Recovery and characterization of legume protein: Examination of the fate of glucosinolates during protein isolation and use
Gas fired micronization to reduce cooking time and improve quality of pulses and cereals
Micronization and enzyme supplementation to improve the nutritive value of peas

T. Beta
Investigating methods of measuring antioxidants in cereals
Analyzing antioxidant activity and total phenolics in milled fractions of wheat
Analyzing phenolic compounds in barley genotypes using HPLC and rapid screening methods

G. Blank
Use of heat and radiated lysozyme as an alternative to antibiotic therapy in poultry rearing
Effect of exogenous enzymes in poultry diets on gut microflora
Microbial flora of Peruvian Brazil nuts and conditions favouring aflatoxin production
Microbiological assessment of the application of liquid hog manure to agricultural soils: effect on water quality and persistence of bacterial pathogens in soils
Use of antimicrobial films to increase safety and shelf-life of poultry broiler carcasses
Use of supersaturated steam as a sporidical treatment for thermophilic, bacterial spores

J.H. Han
Antimicrobial packaging
Whey protein films containing various antimicrobial agents to prevent foods from spoilage and pathogenic bacteria
Use of essential herb oil to kill *E. coli* O157:H7 in ground beef
Antimicrobial process for poultry industry
Edible and biodegradable films/coatings
Pea-protein/starch based edible film development
Protein and carbohydrate coatings on paper/paperboard and plastic films
Photomicroscopy of amylose and amylopectin films

R.A. Holley
Mechanism of natural antimicrobial action
Use of lactoferrin to control pathogens in meat products
Use of natural antimicrobials to kill *E. coli* O157:H7 in fermented meats
Pathogen cycling in animal ecosystems
Survival of *Salmonella* serovars in manure and treated soil
Pathogen survival in manure treated fields
Pathogen survival in horticultural pesticides
Microbial stability of enzyme-treated poultry feed
Use of superheated steam to kill bacterial spores
Thermal resistance of *Salmonella* serovars in frozen chicken nuggets
A.W. Hydamaka
Development of process for oat flour of low spore count
Development of sheep milk cheese varieties
Evaluation of sea buckthorn as a nutraceutical or functional food crop
Evaluation of nutraceutical potential of mustard seed varieties
Development of functional food products - ethnic (Peking perogies)
Process parameters for smoked cheese varieties
Study of interactions of antimicrobial interventions to reduce bacterial contamination of broiler carcasses
Development of foods for diabetic consumer group
Recovery of protein from potato process effluents

H.D. Sapirstein
Weather impacts on CWRS wheat quality from producer fields
Genotype by environment interaction of weather on grade and breadmaking quality of six Canadian hard milling wheats
Quantitation of interactions between weather and Fusarium head blight on wheat safety and quality
Effects of flour pre fermentation and prehydration on wheat protein composition and dough rheological properties
Effects of flour extraction rate and bran content on the protein composition and functionality of Western Canadian wheats
Non-starch polysaccharide composition of wheat flour mill streams
Phenolic acid composition and antioxidant activity of wheat flour mill streams and pearled bran fractions
(in collaboration with Dr. Trust Beta)

M.G. Scanlon
Quality preservation during food processing
Mechanical properties, structure and texture of biological materials
Potato processing
Wheat flour, dough and bread: Processing links

DEPARTMENT OF PLANT SCIENCE

G.M. Ballance
Molecular and biochemical characterization of the host pathogen interactions between Pyrenophora tritici-repentis and wheat

A.L. Brûlé-Babel
Wheat breeding
Genetics of disease resistance in wheat
Genetics of herbicide resistance
Leaf spotting diseases of wheat
Fusarium head blight of wheat
Evaluation of wheat for feed

F. Daayf
Wheat breeding
Genetics of disease resistance in wheat
Genetics of herbicide resistance
Leaf spotting diseases of wheat
Fusarium head blight of wheat
Evaluation of wheat for feed

M.H. Entz
Glenlea long-term crop rotation study
Medics for Canadian prairie cropping systems
Organic field and forage seed crop production
Pesticide-free production
Cover crops

W.G.D. Fernando
Genetic diversity in pathogenicity groups of blackleg pathogen
Biological control of canola diseases, study of volatile antibiotics, and purification and characterization of bacterial antibiotics, and induced resistance
Breeding for disease resistance in high erucic acid rape and low linolenic canola
Effect of environment and cropping practices on the epidemiology of canola pathogens
Wheat-Fusarium epidemiology, biological control and breeding for disease resistance
Effects of plant growth promoting rhizobacteria on growth and health of canola

B.W. Fristensky
Gene array analysis of disease resistance in plants
Differential expression and evolution of multigene families in plants
Database methods for analysis of DNA and protein sequences
Genetic engineering of disease resistance in canola

J.C. Froese
Technology transfer among analogous agricultural zones

A.L. Brûlé-Babel
Wheat breeding
Genetics of disease resistance in wheat
Genetics of herbicide resistance
Leaf spotting diseases of wheat
Fusarium head blight of wheat
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Gene array analysis of disease resistance in plants
Differential expression and evolution of multigene families in plants
Database methods for analysis of DNA and protein sequences
Genetic engineering of disease resistance in canola

J.C. Froese
Technology transfer among analogous agricultural zones

Distribution of soil salinity in dry bean fields
Soil erosion risk and mitigation through crop rotation in organic and conventional cropping systems
Underseeding perennial ryegrass in non-traditional annual crops

R.D. Hill
Hemoglobin and hypoxic stress
Characterization of ABA binding proteins in cereal grains

L. Lamari
Genetics and physiology of host-parasite interactions in leaf spot diseases of wheat: tan spot and Septoria leaf blotch
Legume and potato pathology
Epidemiology
Disease quantification using computer image analysis

G. Li
Marker development and marker assisted selection for disease resistance in brassica
Development of molecular markers for use in marker assisted selection in canola/rapeseed breeding

G.B. Martens
Remote sensing of weeds using low cost technology aerial photographs
Using anhydrous ammonia as a herbicide
The agronomic impact of the McLeod Harvester

P.B.E. McVetty
Canola/rapeseed agronomy and breeding
Canola/rapeseed pollination control system development and breeding method comparisons
High erucic acid summer rape (Brassica napus) cultivar development
Transgenic herbicide resistant summer rape (Brassica napus) cultivar development

W.R. Remphrey
Crown architecture analysis and modeling of woody plants
Development of a model to forecast outbreaks of entomosporium leaf and berry spot in saskatoon orchards and phenological development of the saskatoon for more effective crop management, reproductive development and yield studies in saskatoon
An evaluation of bur oak (Quercus macrocarpa) decline in Winnipeg, Manitoba

Assessing aspects of developmental and reproductive biology related to interspecific incompatibility between sections of Lilium

R. Scarth
The development of canola cultivars with modified oil quality including low linolenic and low saturate levels
The application of new technology including doubled haploid development and molecular markers to genetic studies of canola
Modelling the effects of climate change on oilseed production in western Canada

C. Stasolla
Effects of the redox state of the culture medium during embryogenesis
Nucleotide metabolism during morphogenesis in vitro
Identification of regulatory genes expressed during somatic embryogenesis
Physiological studies on lignin produced in vitro

R.C. Van Acker
Weed seedling recruitment ecology and biology
Cultural and herbicidal weed control
Crop and weed ecology and management
Pesticide-Free Production
Occurrence and evolution of herbicide resistant weeds

J.K. Vessey
Effect of nitrate and ammonium on the development and functioning of legume-rhizobia symbioses
Gluconacetobacter diazotrophicus: A novel approach in the pursuit of N2 fixing wheat
The abundance, efficacy and genetic diversity of Rhizobium leguminosarum bv. viciae in southern Manitoba soils
Exploration of biological nitrogen fixation in native prairie grasses

D.L. Burton
Emissions of greenhouse gases from soil
A. Farenhorst
Developing the Canadian Pesticide Risk Indicator for Water Quality
Herbicide sorption and biodegradation processes within soil-landscapes
Impact of tillage erosion on pesticide movement to surface water and groundwater
Effect of hog manure applications on weed control management
Pesticide leaching risks in potato cropped soils
Endocrine disrupting chemicals in water and soil
Pesticide fate processes in wetlands

D.N. Flaten
Effects of sulphur nutrition on grain quality of wheat
Effects of application date, landscape position, and nitrification inhibitor on efficiency of fall banded nitrogen fertilizer in Manitoba
Influence of pulse crop rotation and controlled release urea on protein accumulation and quality in CWRS wheat
Optimum canola production: fertilization, crop protection, and genetic yield potential
Effect of co-precipitated gypsum with calcium carbonate on soil test extractable S
Agronomic efficiency of homogeneous NPS fertilizer
Risk of P transfer from manure-amended soils to water

P.R. Bullock
Identification of landscape units for agriculture using high resolution IKONOS satellite images
Meteorological benchmarking of new crop varieties
Growing season weather impacts on wheat grade and end use quality
Agrometeorological risk for crop production in Western Canada

D.A. Lobb
Materials and methods to measure tillage translocation
Factors that affect tillage translocation and tillage erosion
Impacts of tillage erosion on agriculture and the environment
Indicators of soil redistribution
Models of tillage translocation and tillage erosion

M. Tenuta
Soil community ecology
Effect of agricultural management on soil nematode communities of Manitoba
Identification of the mode of action of lime stabilized sewage sludge in killing plant-parasitic nematodes
Examination of the lethal effect of volatile fatty acids in liquid swine manure on soilborne plant pathogens and pests
Characterization of Potato-Early-Dying Syndrome
Survival of liquid swine manure bacteria in soil and residue subject to freezing and thawing
Greenhouse gas emissions from soil and manure
Soil factors affecting the emission of N2O from thawing soil
Abatement of greenhouse gas emissions from manures
Publications and Reports

DEPARTMENT OF
AGRIBUSINESS AND
AGRICULTURAL ECONOMICS

Referred Papers in Scientific Journals


Abstracts


Research reports


Working Papers

Brewin, D.G. 2003. The influence of rurality, space and human capital on the convergence of incomes in the counties of the U.S.

Brewin, D.G. 2003. The integration of rurality, space, migration and income in the U.S.


Working Papers

Brewin, D.G. 2003. The influence of rurality, space and human capital on the convergence of incomes in the counties of the U.S.

Brewin, D.G. 2003. The integration of rurality, space, migration and income in the U.S.


Working Papers

Brewin, D.G. 2003. The influence of rurality, space and human capital on the convergence of incomes in the counties of the U.S.

Brewin, D.G. 2003. The integration of rurality, space, migration and income in the U.S.


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Brewin, D.G. 2003. The influence of rurality, space and human capital on the convergence of incomes in the counties of the U.S.

Brewin, D.G. 2003. The integration of rurality, space, migration and income in the U.S.


**Books and Book Chapters**


**Papers in Conference Proceedings**


Unpublished Conference Addresses


Ominsni, K.H. 2003. What is the Kyoto Protocol….and what’s in it for beef producers?? Interlake Regional Staff Meeting, April 23 and Western Beef Development Centre, June 25, Lanigan, SK.


Popular Articles


Video Tapes and Microcomputer software


DEPARTMENT OF BIOSYSTEMS ENGINEERING

Refereed Papers in Scientific Journals


Books and Book chapters


Papers in Conference Proceedings


Mann, D.D. 2003. Case Study: Application of biofiltration technology to the reduction of odour from livestock barns. Presented at the "Air Toxics and Odour Control" Seminar sponsored by EPIC, April 29-May 1, Winnipeg, MB. (Paper written but seminar cancelled due to low enrolment)


Research Reports


Unpublished Conference Addresses

Cenkowski, S. 2003. Drying foodstuffs with superheated steam. PRES’03 Conf., October 26-29, Hamilton, ON. (panel session speaker)

Chen, Y. 2003. Fibre processing and harvesting mechanization. PAPTAC-NWFC Field Fibre Symposium. Alberta Research Council, June 16-17, Edmonton, AB. (invited presentation)


Yakimishen, R. and S. Cenkowski. 2003. Preliminary results on oil extraction from sea buckthorn. Presentation to Sea buckthorn Association of Manitoba, November 8, Portage la Prairie, MB.


Popular Articles


Britton, M.G. 2003 Thoughts on Design . . . and pondering a design goal. The Keystone Professional, December.


Britton, M.G. 2003 Thoughts on Design . . . just what is design competence? The Keystone Professional, April.


DEPARTMENT OF ENTOMOLOGY

Refereed Papers in Scientific Journals


Non-refereed Papers In Scientific Journals


Books and Book Chapters


Papers in Conference Proceedings


Abstracts


Research Reports


Food Research & Development Initiative. 21 p.


Unpublished Conference Addresses


Holliday, N.J. 2003. Managing Delia radicum (L.) in Canadian canola. CABI Bioscience Centre, June, Delemont, Switzerland.


DEPARTMENT OF FOOD SCIENCE

Referred Papers in Scientific Journals


Book and Book Chapters


Papers in Conference Proceedings


Abstracts


Research Reports


Unpublished Conference Addresses


Holley, R.A. 2003 Improved broiler carcass washing. Canadian Poultry & Egg Processors Council technical meeting, September 4, Saskatoon, SK. (invited)


Scanlon, M.G. and J.H. Page. 2003. Ultrasonic for probing the effect of bubbles in dough. Agriculture and Agri-Food Canada Research Centre, November 24, St Hyacinthe, QC.

Scanlon, M.G. and J.H. Page. 2003. The sound of dough. This Lunch Hour Has 33 Minutes Series presented by researchCAP, October 29, Winnipeg, MB.

Scanlon, M.G. and Z.Q. Liu. 2003. Predicting the functional properties of bread crumb from its structure. 94th Am. Oil Chemists Society Annual Meeting & Expo, May 4-7, Kansas City, MO.


Papers in Conference Proceedings


Fernando, W.G.D. 2003. Biological control methods to manage fusarium head blight disease of wheat: is it a short or long term solution to the problem? Proc. 3rd Canadian workshop on Fusarium head blight, December 9-12, Winnipeg, MB. p. 112. (invited talk)


Savchuk, S., Y. Zhang, and W.G.D. Fernando. 2003. Effect of bacterial antagonistic populations and time of
application on control of Sclerotinia sclerotiorum on canola. Proc. 11th International Rapeseed Congress, July 6-10, Copenhagen, Denmark. (abstracts) p. 146.


Research Reports


Unpublished Conference Addresses


Van Acker, R.C. 2003. Implications of the introduction of Roundup Ready wheat. Western Ag. Labs Agronomy Seminar, January 7, Saskatoon, SK.


Van Acker, R.C. 2003. The implications of growing HT GMO wheat in western Canada. Special presentation to Agriculture and Agri-food Canada Policy Branch staff, January 16, Winnipeg, MB and via video conference to Ottawa, ON.


Van Acker, R.C. 2003. Managing Canada thistle. Minto Co-op Agronomy Seminar, February 17, Minto, MB.


Van Acker, R.C. 2003. The environmental risk for direct-seeding farmers associated with the release of Roundup Ready wheat in western Canada. General Council of the Keystone Agricultural Producers, July 17, Brandon, MB. (invited presentation)


Van Acker, R.C. 2003. IPM for weeds is not like IPM for insects or diseases. Farming with Fewer Chemicals, Semi-Annual Meeting, March 6, Carman, MB.


Van Acker, R.C. 2003. Benefits and problems associated with herbicide tolerant crops in western Canada. Presentation as part of Environmental Awareness Week, University of Manitoba, March 21, Winnipeg, MB.

Van Acker, R.C. 2003. Biology, ecology and management of annual and perennial sowthistle. Manitoba Weed Supervisors Association Training Seminar, April 9, Russell, MB.


**Popular Articles**


Fernando, W.G.D. 2003. Article on canola and Blackleg in Reduced Tillage Linkages, August.


Canola Digest, November/December.


Extension Bulletins


Video Tapes and Microcomputer Software


SCHOOL OF AGRICULTURE


DEPARTMENT OF SOIL SCIENCE

Referred Papers


Papers in Conference Proceedings


Gaultier, J. and A. Farenhorst. 2003. Fate of 2,4-D as affected by ecoregion, landscape position and soil depth. Proc. 46th Manitoba Soc. Soil Science Meeting, Winnipeg, MB. (poster)

Gaultier, J. and A. Farenhorst. 2003. Sorption of 2,4-D as affected by landscape position and soil depth. Manitoba Agronomists Conf., Winnipeg, MB. (poster)


Abstracts


Tenuta, M. 2003. Factors Responsible for Vigorous Emissions of N2O from Thawing Soil. Poster presentation to the Can. Soil Science Society annual meeting, August, Montreal, QC.


Research Reports


Flaten, D., K. Snelgrove, I. Halket, K. Buckley, G. Penn, W. Akinremi, B. Wiebe and E. Tyrchniewicz. 2003. Acceptable phosphorus concentrations in soils and impact on the risk of phosphorus transfer from manure amended soils to surface waters. Phase 1 Report to the Manitoba Livestock Manure Management Initiative, May 1. Plus various routine progress and final reports for research granting agencies (e. g., ARDI, MLMMI, etc.)

Goh, T.B. 2003. Assessing the micronutrient requirements of cereals, canola and beans in Manitoba. Final report to ARDI, project # 00-347.

Working Papers


Unpublished Conference Addresses


Bullock, P.R. 2003. Climate change – what’s it all about? Brandon Ag Days, January, Brandon, MB.

Honors and Awards

Diploma in Agriculture Program

DIPLOMA CONVOCATION AWARDS

Governor-General’s Medal
In 2003 the Governor-General’s Medal for scholarship, which is awarded to the student with the highest standing in the two-year program, was presented to Bradley George Marginet (Treherne).

President’s Medal
In 2003, the President’s Medal was awarded to Steven Troy Turner (Carman) for outstanding scholarship and leadership.

Diploma with Distinction
Awarded to students with a grade point average of 3.75 or better out of a possible 4.5.

David Chris Barkman (Blumenort)
Joey Christopher Fiola (Ste. Genevieve)
Patrick Guibert Hacault (Cypress River)
Dawirai Simbarashe Kawadza (Zimbabwe)
Bradley George Marginet (Treherne)
Ryan Alexander Wahl (Halbstadt)

Dean’s Honor List
In 2003, ten second-year students, along with eight first-year students, obtained an overall grade point average of 3.50 and were placed on the Dean’s Honor List.

Canadian Association of Agri-Retailers (CAAR) ($1125)
Patrick Hacault (Cypress River)
Steven Troy Turner (Carman)

Canadian Wheat Board Prize ($500)
Luc Berard (Notre Dame de Lourdes)

James Farms Award ($400)
Bradley George Marginet (Treherne)

Pallister Farm Award ($625)
David Chris Barkman (Blumenort)
Bradley George Marginet (Treherne)
Dawirai Simbarashe Kawadza (Zimbabwe)

Cyril L. Anderson -- Ridley Canada Limited Prize - Diploma Agriculture ($300)
David Chris Barkman (Blumenort)

John Roth Memorial Award ($250)
Steven Troy Turner (Carman)

Manitoba Pork Council Prize ($200)
David Chris Barkman (Blumenort)

Brad Jonk Memorial Award
Tim Bergen (Sanford)

GENERAL DIPLOMA AWARDS

Back to the Land Association Prizes (5 @ $200)
David Chris Barkman (Blumenort)
Ryan Matthew Carter (Kenton)
Joey Christopher Fiola (Ste. Genevieve)
Dawirai Simbarashe Kawadza (Zimbabwe)
Bradley George Marginet (Treherne)

Manitoba Dairy Association Prize ($300)
David Chris Barkman (Blumenort)

Farm Credit Canada Business Planning Award
Group 1 ($2500):
Dawirai Simbarashe Kawadza (Zimbabwe)
Kyle William Klimpke (Rosser)
Bradley George Marginet (Treherne)
Group 2 ($1500):
Nevin Bachmeier (Steinbach)
Gerald Willlie Neufeld (Halbstadt)
Ryan Alexander Wahl (Halbstadt)
Individual 1 ($1000):
David Chris Barkman (Blumenort)
Individual 2 ($1000):
Joey Christopher Fiola (Ste. Genevieve)

Certificate of Merit
Presented to past diploma graduates who are recognized for their achievements in the industry.
J. Paul Maguet

AWARDS FOR FIRST YEAR DIPLOMA STUDENTS

Dr. A.W. Hogg Undergraduate Scholarships ($1500)
Andrew James Reimer (Blumenort)

Canadian Wheat Board Scholarships (4 X $500)
Livestock Management
Nelena Antonia Bergsma (Carman)
Crop Management
Thomas Luke Suderman (Winkler)
General Agriculture
Andrew James Reimer (Blumenort)
Farm and Ag. Business
Benjamin John Elskamp (Woodlands)

Nevin Estate Scholarship ($1000)
Joey Christopher Fiola (Ste. Genevieve)

Manitoba Feed Industry Association Scholarship ($500)
David Chris Barkman (Blumenort)

Keystone Agricultural Producers/Nesbitt Leadership and Communications Scholarship ($500)
Darryl Loewen (Winnipeg)

Manitoba Seed Growers Scholarship ($400)
Joel Dewayne Grenier (Woodridge)

McDiarmid Lumber Limited Scholarship ($300)
Joel Dewayne Grenier (Woodridge)

Winnipeg Livestock Exchange (2 X $150)
Kyle David Friesen (Altona)
Curtis Josef Hueging (Woodlands)

Agriculture Faculty Award ($100)
Andrew James Reimer (Blumenort)

Faculty of Agriculture Students Organization (FASO) Award ($100)
Tyler Lorne Booker (Starbuck)

Cargill Prize for Excellence in Communications ($100)
Joel Doerksen (Ste. Anne)

Isbister Scholarship in Agriculture ($725)
Andrew James Reimer (Blumenort)

Bachelor of Science (Degree) Programs

Students in the undergraduate degree programs in the Faculty of Agricultural and Food Science receive numerous honors and awards. Most are based on academic achievement, but financial need may also be a criterion. Several of the awards carry no financial remuneration, but are coveted by all students. These include the University Gold Medal for the highest academic standing during the two senior years of any of the undergraduate degree programs, the Lieutenant-Governor’s Gold Medal for scholarship and demonstrated leadership throughout the four years in the Faculty and program medals for highest academic standing in each of the four undergraduate degrees.

UNDERGRADUATE CONVOCATION AWARDS

University Gold Medal in Agricultural and Food Sciences
Jennifer Beth Sletmoen (Fort Frances, ON)

Faculty of Agricultural and Food Sciences B.Sc. (Agriculture) Medal
Dana Rae Rourke (Minto)

Faculty of Agricultural and Food Sciences B.Sc. (Agribusiness) Medal
Lisa Dawn Hogg (Warren)

Faculty of Agricultural and Food Sciences B.Sc. (Agroecology) Medal
Leanne Catherine Evenson (Morris)
Faculty of Agricultural and Food Sciences B.Sc. (Food Science) Medal
Evelyn Jean Froehlich (St. Andrews)
Shelby Blayne Temple (Waskada)

Dr. A.W. Hogg Undergraduate Scholarship - Degree ($1500)
Shelby Blayne Temple (Waskada)

George Weston Scholarship ($4000)
Monica Purnama (Indonesia)

Manitoba Institute of Agrologists Scholarship ($800)
Anais Gina Marie Hacault (Niverville)

William and Alice Siverwright Cuthbertson (nee Patterson) Scholarship ($1000)
Kevin Reinhard Penner (Winnipeg)

Class of 1963 Scholarship in Agriculture ($725)
Tanis Ruth Hofer (Ile des Chenes)

Rachel and Isaac Sair Scholarship ($625)
Marlin Brent Froese (Plum Coulee)

Isbister Scholarship ($750)
Jacqueline Marie Gordon (Neepawa)

Roderick McKenzie Scholarship ($100)
Jennifer Lee Allston (Winnipeg)

E.L. Wight Memorial Scholarship ($300)
Ryan James Boyd (Forrest)

Rossnagel Scholarship for Academic Improvement ($500)
Tanis Desrochers (Mariapolis)

W. W. Thompson Scholarship ($1,425)
Deborah Lynn Wiens (La Salle)

Manitoba Seed Growers Awards (2 X $400)
Fourth Year:
Sharlene Maddess (Deloraine)
Third Year:
Ryan James Boyd (Forrest)

Keystone Agriculture Producers Leadership Scholarship ($250)
Jean-Claude Auguste Saquet (Laurier)

Cargill Prize for Excellence in Communications ($150)
Rachel Marie Bamford (Winnipeg)

Manitoba Ag Days Scholarship in the Faculty of Agricultural and Food Sciences ($1000)
Karl James Bergman (Lowe Farm)

Faculty of Agriculture Students Organization (FASO) Award (2 X $175)
Third Year:
Jacqueline Marie Gordon (Neepawa)
Second Year:
Anais Gina Marie Hacault (Niverville)

Agriculture Faculty Awards (5 X $100)
Agribusiness
Jacqueline Marie Gordon (Neepawa)

Agronomy
Sharlene Maddess (Deloraine)
Animal Systems
Deborah Lynn Wiens (La Salle)
Biosystems Engineering
Rexon Datquen Tse (China)
Food Science
Alexandra Pinterits (St. Francois Xavier)

AWARDS FOR A SPECIFIC AREA OF STUDY

DEPARTMENT OF AGRIBUSINESS & AGRICULTURAL ECONOMICS

CIBC Agricultural Scholarships (4 X $3000)
Rachel Marie Bamford (Winnipeg)
Marlin Brent Froese (Plum Coulee)
Jacqueline Marie Gordon (Neepawa)
Shelby Blayne Temple (Waskada)

DEPARTMENT OF ANIMAL SCIENCE

Cyril L. Anderson --- Ridley Canada Limited in Award ($500)
Jennifer Beth Sletmoen (Fort Frances, ON)

Animal Nutrition Association of Canada Scholarship (Previously known as the Canadian Feed Industry Association Scholarship) ($500)
Deborah Lynn Wiens (La Salle)

Nevin Estate Scholarship ($1000)
Tyra Meaghan Dickson (Morris)

E.W. Stringam Award for Excellence in Animal Science ($400)
Jennifer Beth Sletmoen (Fort Frances, ON)

Manitoba Egg Producers Award in Animal Science ($300)
Jennifer Beth Sletmoen (Fort Frances, ON)

Canadian Society of Animal Science Book Prize ($100)
Tyra Meaghan Dickson (Morris)

S.C. Stothers Award ($125)
Alan William Christison (Carberry)

Norman E. Stanger Prize in Pre-Veterinary Studies ($600)
Kathryn Lee Surasky (Winnipeg)

Manitoba Hatchery Association Scholarship ($400)
Deborah Lynn Wiens (La Salle)

Manitoba Egg Producers Award in Animal Science ($300)
Deborah Lynn Wiens (La Salle)

Westgen Scholarship in Animal Science ($1000)
Kimberly Dawn De Ruyck (Bruxelles)
DEPARTMENT OF BIOSYSTEMS ENGINEERING
CSAE Undergraduate Paper Competition
First Place: Dolores Genaille (Rivers)
Second Place: Alison Weiss (Winnipeg)

DEPARTMENT OF ENTOMOLOGY
G. Robinson Memorial Award ($825)
Erica Leann Smith (Portage la Prairie)

DEPARTMENT OF FOOD SCIENCE
Canadian Institute of Food Science and Technology Scholarships ($1000) McCormick Canada
Monica Purnama (Indonesia)

Catherine E. Reimer Memorial Scholarship ($100)
Robert Klos (Winnipeg)

Manitoba Egg Producers Scholarship in Food Science ($300)
Alexandra Pinterits (St. Francois Xavier)

CIFST Givaudan Centennial Award 2nd Place ($500)
Julie Melietio (Indonesia)

IFT Junior/Senior Scholarship ($1,000 US)
Monica Purnama (Indonesia)

NSERC Undergraduate Research Award
Emefa Angelica Monu (Brandon)

DEPARTMENT OF PLANT SCIENCE
Frederick L. Paulley Prize in Horticulture ($75 interest)
Paul James Gervais (Bagot)

Stefansson Award in Plant Science ($1075)
Chad Schmidt (Elm Creek)

Manitoba Horticultural Societies Award ($500)
Nancy C Bakosti (Winnipeg)

H. W. Kennedy Prize ($225)
Jane Erin Dawson (Winnipeg)

Postgraduate (M.Sc. and Ph.D. Program Awards)

DEPARTMENT OF AGRIBUSINESS AND AGRICULTURAL ECONOMICS
Canadian Commonwealth Scholarship
Javed Iqbal - Ph.D. (Pakistan)

Douglas McRorie Memorial Scholarship
Jonathon Driedger - M.Sc. (Grunthal)

J.C. Gilson Agribusiness Fellowship
Ryan Buchanan - M.Sc. (Winnipeg)

Winnipeg Commodity Exchange Centennial Fellowship
Jonathon Driedger - M.Sc. (Grunthal)

DEPARTMENT OF ANIMAL SCIENCE
Cyril L. Anderson-Ridley Graduate Fellowship in Animal Nutrition
Desmond Ballance - M.Sc. (Winnipeg)

Nevin Estate Fellowship
Drona Rasali - Ph.D. (Nepal)

Norval C. Young Graduate Fellowship in Animal Science
Xianfeng Meng - Ph.D. (China)

Kenneth G. Wersh Fellowship
Amy Margaret Hawkins - M.Sc. (Winnipeg)

Robert J. Parker Graduate Fellowship in Swine Science
Danielle Ludke - M.Sc. (Dugald)

NSERC
Desmond Ballance - M.Sc. (Winnipeg)

University of Manitoba Graduate Fellowship
Parthiban Muthukumarasamy - Ph.D. (India)

Garson N. (Gerry) Vogel Memorial Award ($500.00)
Rebecca Mollard - Interdepartmental Ph.D Program (Winnipeg)

James W. Barlow Graduate Fellowship in Food Science ($7,775)
Emefa Angelica Monu - M.Sc. (Brandon)

DEPARTMENT OF BIOSYSTEMS ENGINEERING
CSAE M.Sc. Thesis Award (1st place)
Scott Young (Winnipeg)

CSAE PhD Thesis Award (1st place)
Chithra Karunakaran (India)

University of Manitoba Graduate Fellowship
Chukwunonyerem Samuel Ima (Nigeria)

NSERC Undergraduate Scholarships
Rexon Tse (Hong Kong)
Farrah Charisse Jerao Fernando (Winnipeg)

University of Manitoba Graduate Fellowship
Rebecca Lea Austman (Winnipeg)
Erron James Leafloor (Killarney)

DEPARTMENT OF ENTOMOLOGY
Entomological Society of Manitoba Orkin/Swat Student Award
Kathleen Ryan (Winnipeg)

Entomological Society of Manitoba Post Graduate Scholarship
Michael Alpelyn (Nova Scotia)

Canadian Commonwealth Scholarship and Fellowship Plan
Kennantudawage Siril Hemachandra - Ph.D. (Sri Lanka)
Mohammed Jashim Uddin - Ph.D. (Bangladesh)

Canadian Institutes of Health Research/International Centre for Infectious Disease Training Program Award
Lisa Baspaly - Ph.D. (Winnipeg)

NSERC Postgraduate Scholarship
Rebeckah Rooney - M.Sc. (Ottawa)

University of Manitoba Graduate Fellowship
Dalila Seckar - M.Sc. (Montreal)

DEPARTMENT OF FOOD SCIENCE
Canadian Meat Science Association Award ($2,000)
Parthiban Muthukumarasamy - Ph.D. (India)

University of Manitoba Graduate Fellowship
Lynne Penner - M.Sc. (Manitou)

The Lord Selkirk Association of Rupertsland Agriculture Scholarship
Lynne Penner - M.Sc. (Manitou)

University of Manitoba Graduate Fellowship
Elena Gomez Haro Aceves - M.Sc. (Mexico)
Parthiban Muthukumarasamy - Ph.D. (India)
Anne-Sophie Machet - M.Sc. (France)
William B. Malchy Graduate Fellowship
Anne-Sophie Machet - M.Sc. (France)

Canadian Wheat Board Graduate Fellowship
Guillermo Bellido - Ph.D. (Peru)

DEPARTMENT OF PLANT SCIENCE
Canadian Wheat Board Graduate Fellowship
William John Bullied - Ph.D. (Winnipeg)
Sharla Gail Cowling - M.Sc. (Hamiota)
Jeanne Catherine Evenson - M.Sc. (Morris)
Xiaowei Guo - Ph.D. (Winnipeg)
Paul Richard Watson - Ph.D. (Brandon)

James Gordon Fletcher Graduate Fellowship in Agricultural and Food Sciences
Matthew James Wiens - M.Sc. (Winnipeg)

Ministry of Science, Research and Technology of the Islamic Republic of Iran
Ahad Baghery - Ph.D. (Iran)
Kaveh Ghanbarnia - Ph.D. (Iran)

NSERC Canada Graduate Scholarship
Leanne Catherine Evenson - M.Sc. (Morris)

NSERC Industrial Postgraduate Scholarship
Robert John Brogan - M.Sc. (Glenlea)
Jody Elaine Dexter - M.Sc. (Winnipeg)
Kristin Michelle Hacault - M.Sc. (Swan Lake)
Anastasie Kabanyana - M.Sc. (Winnipeg)

NSERC Postgraduate Scholarship
Nathan Shawn Boyd - Ph.D. (Nova Scotia)
Alden John Braul - M.Sc. (Alberta)
William John Bullied - Ph.D. (Winnipeg)
Haley Autumn Catton - M.Sc. (St. Clements)
Sharla Gail Cowling - M.Sc. (Hamiota)
Patricia Anne Cuthbert - Ph.D. (Winnipeg)
Kristi Anne De Corby - M.Sc. (Swan Lake)
Arvel Nicole Lawson - M.Sc. (Miami)
Alison Gail Nelson - M.Sc. (Winnipeg)
Darren Craig Plett - M.Sc. (Winnipeg)
Danielle Joy Reid - M.Sc. (Winnipeg)

Peter Dyck Fellowship
Janice Louise Cuthbert - Ph.D. (Winnipeg)

University of Manitoba Graduate Fellowship
Anthony Ralph Szumigalski - Ph.D. (Winnipeg)

Canadian Phytopathological Society Graduate Student Travel Award
Yu Chen - Ph.D. (China)

Canadian Phytopathological Society Regional Meeting Student Oral Presentation Award
Yilan Zhang - M.Sc. (China)

Department of Plant Science Graduate Student Symposium Presentation Award
Haley Autumn Catton - M.Sc. (St. Clements)
Yu Chen - Ph.D. (China)
Quinn Allen Holtslag - Ph.D. (Winnipeg)
Anthony Ralph Szumigalski - Ph.D. (Winnipeg)

Gwen Rue Memorial Award
Robert Wayne Duncan - M.Sc. (Miami)

Helgason Award for Graduate Students in the Department of Plant Science
Nathan Shawn Boyd - Ph.D. (Nova Scotia)
Janice Louise Cuthbert - Ph.D. (Winnipeg)

Manitoba Horticulturists Graduate Scholarship
Shannon-Lee Marlene Barry - M.Sc. (Winnipeg)
Haley Autumn Catton - M.Sc. (St. Clements)

Manitoba Soil Science Society Graduate Student Oral Presentation Award
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R.A. (Bob) Bristow Memorial Scholarship
Janice Louise Cuthbert - Ph.D. (Winnipeg)

University of Manitoba Alumni Travel Award
Yu Chen - Ph.D. (China)
Yilan Zhang - M.Sc. (China)

University of Manitoba Graduate Student Conference Travel Award
Yu Chen - Ph.D. (China)
Yilan Zhang - M.Sc. (China)

University of Manitoba Students Union Scholarship
Alison Gail Nelson - M.Sc. (Winnipeg)

University of Manitoba Graduate Fellowship
Anastasie Kabanyana - M.Sc. (Winnipeg)

University of Manitoba Graduate Student Conference Travel Award
Yu Chen - Ph.D. (China)
Yilan Zhang - M.Sc. (China)

Young Scientist Footprints Award
Janice Cuthbert - Ph.D. (Winnipeg)

NSERC Postdoctoral Fellowship
Carla Dale Zelmer (Winnipeg)

DEPARTMENT OF SOIL SCIENCE
University of Manitoba Graduate Fellowship Award
Randall Renwick – Ph.D. (Winnipeg)
Duff Roblin Fellowship Awards
Janna Shymko - Ph.D. (Winnipeg)

Natural Sciences and Engineering Research Council of Canada (NSERC PSGA)
Jeanette Gaultier - M.Sc. (Winnipeg)
Myron Kroeker - M.Sc. (Rosenort)
Paula Picton-Walcroft – M.Sc. (Winnipeg)

Natural Sciences and Engineering Research Council of Canada (NSERC IPS)
Marla Riekman - M.Sc. (Rosthern, Saskatchewan)

Canadian Wheat Board Scholarship
Paula Picton-Walcroft - M.Sc. (Winnipeg)

University of Manitoba Student Union Scholarship
Janna Shymko - Ph.D. (Winnipeg)
Babasola Ajiboye – Ph.D. (Nigeria)

Douglas L. Campbell Graduate Fellowship
Janna Shymko - Ph.D. (Winnipeg)

Canadian Society of Soil Science Travel Award
Babasola Ajiboye - Ph.D. (Nigeria)
Kristian Stephens - Ph.D. (Edmonton)
Marguerite Reimer – M.Sc. (Landmark)

Canadian Society of Soil Science Poster Award
Jeanette Gaultier – M.Sc. (Winnipeg)

Manitoba Society of Soil Science Student Oral Presentation Awards
Kristian Stephens - Ph.D. (Edmonton)
Marguerite Reimer – M.Sc. (Landmark)

Faculty of Graduate Studies Conference Travel Award
Babasola Ajiboye - Ph.D. (Nigeria)

Duck’s Unlimited Research Grant
Michelle Erb – M.Sc. (Winnipeg)
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<td>Driedger, J.</td>
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<td>A comparison of methods for computing value at risk in financial markets</td>
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<td>Cho, S.-H.</td>
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<td>The development of DNA vaccines containing genes expressing specific enterotoxigenic Escherichia coli antigens and cytokines for the enhancement of antibody production</td>
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<td>Rasali, D.</td>
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<tr>
<td>Genetic analysis of association among juvenile growth and female reproductive traits in Canadian Angus cattle</td>
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<td>Wang, Y.</td>
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<td>The effects of glucosinolates in canola meal feeding regimens on liver and thyroid physiological responses and productive performance parameters in the laying hen</td>
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<td>Woo, C.W.H.</td>
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<td>Nutraceuticals and vascular disorders</td>
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<td>Vitamins and the early-weaned sow</td>
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<td>Chicken egg yolk antibodies specific for <em>Salmonella enteritidis</em> and <em>S. typhimurium</em> against experimental Salmonellosis in mice</td>
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<td>Friesen, M.J.</td>
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<td>Characterization of the nutritional value of Manitoba-grown peas (<em>Pisum sativum</em>) for pigs</td>
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<td>Muthuramalingam, P.</td>
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<td>Optimization of lighting conditions in dairy barns</td>
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<td>Sabourin, J.</td>
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<td>Canada</td>
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<td>Effect of lactation photoperiod with timed weaning on weaning-to-estrus interval, time of ovulation and reproductive performance of sows</td>
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<td>Ge, T.</td>
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<td>Behavior of bulk solid materials subject to vertical vibration in storage bins</td>
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<td>Hong, J.T.</td>
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<td>China</td>
<td>Modelling of infrared radiation heat transfer for yellow peas in a parallel tray-type gas-fired micronizer</td>
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<td>Jian, F.</td>
<td>D.S. Jayas</td>
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<td>China</td>
<td>Computer modelling of temperature and <em>Cryptolestes ferrugineus</em></td>
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<tr>
<td>Doan, V.</td>
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<td>Mohamed, M.</td>
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<td>Egypt</td>
<td>Emissivity and moisture temperature of yellow peas in the mid-infrared region</td>
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<td>Pettrak, M.</td>
<td>R. Sri Ranjan</td>
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<td>Canada</td>
<td>Development of an in situ hydraulic conductivity probe and measurement protocol</td>
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<td>Wong-Li, J.L.</td>
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<td>Young, S.</td>
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### DEPARTMENT OF ENTOMOLOGY

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<tr>
<td>Hou, X.</td>
<td>China</td>
<td>Control of stored-product insects with protein-rich pea flour and its extract</td>
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<tr>
<td>Baspaly, L.M.</td>
<td>Canada</td>
<td>An evaluation of Reiter’s Medium and three different pool sizes for ovipool surveillance of <em>Culex tarsalis</em>, <em>Culex restuans</em> and <em>Culiseta inornata</em> in Manitoba</td>
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<td>Pech Cherewyk, K.</td>
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<td>Saunders, D.E.</td>
<td>Canada</td>
<td>Effects of Mimic® bioinsecticide on the species diversity of non-target forest Lepidoptera in an operational spruce budworm (Lepidoptera: Tortricidae: <em>Choristoneura fumiferana</em> Clem.) suppression program in northwestern Manitoba</td>
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<tr>
<td>Aminot-Gilchrist, D.</td>
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<td>Effect of Processing and storage on the conjugated linoleic acid (CLA) levels of dairy products manufactured from CLA enhanced milk</td>
<td>A. Hydamaka</td>
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<td>Bellido, G. B.</td>
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<td>David, P.</td>
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<td>Lagasse, S. L.</td>
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<td>Evaluation of hull-less barley flour and fiber-rich-fractions in Asian noodles</td>
<td>M.S. Izydorczyk</td>
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<td>Nadarajah, D.</td>
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<td>Lethality of <em>Escherichia coli</em> 0157:H7 in hamburger treated with purified allyl isothiocyanate and mustard flour</td>
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### DEPARTMENT OF PLANT SCIENCE

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<tr>
<td>Boyd, N.S.</td>
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<td>Holtslag, Q.A.</td>
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<td>Zhang, J.</td>
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### DEPARTMENT OF PLANT SCIENCE

**Master of Science Degree**

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<tr>
<td>Chescu, K.J.</td>
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<td>Duncan, R.W.</td>
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<td>Hoorne, C.S.</td>
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<td>L. Lamari</td>
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<td>Jurke, C.J.</td>
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<td>Plett, D.C.</td>
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<td>Effect of elevated temperature and CO₂ on the leaf and seed fatty acid composition of <em>arabidopsis thaliana</em> and <em>Brassica napus</em> fatty acid mutant lines</td>
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<td>Przednowek, D.W.A.</td>
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<td>Reid, D.J.</td>
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<td>Sawchuk, J.W.</td>
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<td>The influence of simulated herbicide drift on canola and dry bean (<em>Brassica napus</em> L.) and dry bean (<em>Phaseolus vulgaris</em> L.)</td>
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### DEPARTMENT OF SOIL SCIENCE

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<tr>
<td>Ajiobye, B.</td>
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<td>Lanoie, J.</td>
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<td>MacLeod, C. J.</td>
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<td>The effects of liquid hog manure application and tillage systems on the rate of cereal crop residue decomposition in clay soils</td>
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<td>Muc, D.</td>
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<tr>
<td>Przednowek, D.</td>
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<td>Stephens, K. D.</td>
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<td>The spatial variability of soil properties and 2,4-D sorption and desorption in two calcareous prairie landscapes</td>
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<td>Tiessen, K. H. D.</td>
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<td>Efficiency of fall-banded urea fertilizer in Manitoba: Effect of application date, landscape position and fertilizer additives</td>
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Contributors to Research

Advanta Canada Inc.
Agilent Technologies Inc.
Agricultural Institute of Canada Foundation
Agriculture and Agri-Food Canada
Agriculture and Agri-Food Canada (Cereal Research Centre)
Agriculture & Agri-Food Canada (Matching Investment Initiative)
Agriculture & Agri-Food Canada (National Agri-Environmental Health and Analysis Reporting Program)
Agriculture & Agri-Food Canada (National Soil Carbon and Greenhouse Gas Accounting and Verification System)
Agri-Food Research and Development Initiative
Agri-Marketing Corp.
Agrium
Alberta Canola Producers Commission
Alternative Heating Systems Inc.
American Ingredients Company
Animal Nutrition Association of Canada, Manitoba Division
Beef Cattle Research Council
Beef Information Centre
Brandon Hog Days Committee
Building Alternatives Inc.
CABI Bioscience
Canada Foundation for Innovation
Canadian Adaptation and Rural Development
Canadian Agri-Food Research Council
Canadian Agri-Food Research Council (Biological Greenhouse Gas Sources and Sinks)
Canadian Bee Research Fund (Canadian Honey Council)
Canadian Beef Export Federation, Korean Branch Office
Canadian Bio-Systems Inc.
Canadian Cattlemen’s Association
Canadian Commonwealth Scholarship and Fellowship Plan
Canadian Egg Marketing Agency
Canadian Fertilizer Institute
Canadian Food Inspection Agency
Canadian Grain Commission

Canadian Grain Commission - Grain Research Laboratory
Canadian Poultry and Egg Processors Council
Canadian Wheat Board
CanAmera Foods Ltd.
Can-Oat Milling
Canola Council of Canada
Canola Council of Canada (Canola Agronomic Research Program)
Cargill Ltd.
Chemawawin Cree Nation
City of Winnipeg
Claas of America
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Connery’s Riverdale Farms Ltd.
Cotswold Swine Genetics
Credit Union Central of Manitoba
Cyanamid Crop Protection Canada Inc.
Dairy Farmers of Canada
Danisco Animal Nutrition
Danisco USA Inc.
Deep River Science Academy (Whiteshell Campus)
Deerwood Soil and Water Management Association
Degussa-Huels, Germany
Dow AgroSciences Canada Inc.
Ducks Unlimited Canada
DuPont Canada Ltd.
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Faculty of Agricultural & Food Sciences Endowment Fund
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Federated Co-operatives Ltd.
Finnfeeds International
FMC Corporation
Food Development Centre
GE3LS Genome Prairie
Genome Prairie - BioInformatic
Granny’s Poultry Co-operative (Manitoba) Ltd.
Greenhouse Gas Mitigation Fund
Gustafson
Health Canada, National Microbiology Laboratory, Canadian Sciences Centre for Human and Animal Health
Hemp Oil Canada Inc.

Human Resources and Skills Development Canada (Program for North American Mobility in Higher Education)
Human Resources and Skills Development Canada (Summer Career Placement Program)
Imperial Oil Limited
Industrial Research Assistance Program - National Research Council
Insect Control Branch, City of Winnipeg
Instituto Nacional de Biodiversidad (INBio) Costa Rica
Interlake Livestock and Forage Improvement Association
International Development Research Centre
Interprovincial Cooperative Ltd.
ISIS Canada
J.C. Gilson Agribusiness Fellowship
John E. Christie
Keystone Vegetable Producers Association
Landmark Feeds Inc.
Luscar Ltd.
Manitoba Agriculture, Food and Rural Initiatives
Manitoba Agriculture, Food and Rural Initiatives - Covering New Ground
Manitoba Association of Agricultural Societies
Manitoba Beekeepers Association
Manitoba Broiler Hatching Egg Commission
Manitoba Buckwheat Growers’ Association
Manitoba Canola Growers Association
Manitoba Cattle Producers Association
Manitoba Chicken Producer Board
Manitoba Corn Growers Association
Manitoba Crop Insurance Corporation
Manitoba Culture, Heritage and Tourism
Manitoba Egg Producers
Manitoba Forage Council
Manitoba Forage Seed Association
Manitoba Health Research Council
Manitoba Health, Cadham Provincial Laboratory
Manitoba Hydro
Manitoba Industry, Economic Development and Mines
Manitoba Livestock Manure Management Initiative Inc.
Manitoba Medical Service Foundation
Manitoba Milk Producers
Manitoba Pork Council
Manitoba Pulse Growers Association Inc.
Manitoba Queen Rearer’s Association
Manitoba Rural Adaptation Council Inc.
Manitoba Turkey Producers
Maple Leaf Foods Inc.
Maple Leaf Foods International
Maple Leaf Pork
McCain Foods Ltd.
Meteorological Service of Canada
MicroScience Tech Co. Ltd.
Midwest Foods Inc.
Monsanto Canada Inc.
N. M. Paterson & Sons Ltd.
National Pork Board (U.S.A.)
National Sunflower Association of Canada Inc.
Natural Sciences and Engineering Research Council of Canada
Natural Sciences and Engineering Research Council of Canada - Collaborative Research and Development
Nestlé Canada Inc.
Newton Enterprises
Noetix Research Inc.
Nova Scotia Agricultural College Research Office
Nymox Pharmaceutical Corporation
Old Dutch Foods Ltd.
Ontario Ministry of Agriculture and Food
Organic Agriculture Centre of Canada
Pembina Valley Development Corporation
Piller’s Sausages & Delicatessens Limited
Potash and Phosphate Institute of Canada
Poultry Industry Council
Prairie Machinery Agricultural Institute
Republic of Korea Government - National Agricultural Cooperative Federation
Robert Wrigley
Saskatchewan Agriculture Development Fund
Savannah Shepherds
Scientific and Environmental Affairs Division, NATO
Simplot Canada Ltd.
Social Sciences and Humanities Research Council of Canada
South Interlake Land Management Association
Springhill Farms
Stuartburn Piney Agricultural District Association
SulFerWorks
Sustainable Development Innovations Fund
Sweet Alternative Desserts
Syngena Crop Protection Inc.
The Co-operators Group Inc.
The Land Institute
The Western Canada Canola & Rapeseed Recommending Committee Inc.
Tire Stewardship Board
Todd Lawton
United Grain Growers Ltd.
United States Department of Agriculture – Agricultural Research Service
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Venture Seeds
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Winnipeg Commodity Exchange
Winnipeg Inner-city Research Alliance