

2010-2011  
ANNUAL REPORT



Our  
knowledge  
is your  
Advantage



UNIVERSITY OF ALBERTA  
DEPARTMENT OF AGRICULTURAL,  
FOOD & NUTRITIONAL SCIENCE

## mission statement

To serve the community through excellence in teaching and research in:

- efficient and sustainable agricultural production
- value added processing
- food safety, and
- human health

to improve the health and quality of life.



Dr. Erasmus Okine  
and Dr. John Kennelly

It is with great enthusiasm that we find ourselves addressing you once again as dean of the Faculty of Agricultural, Life & Environmental Sciences, and chair of the Department of Agricultural, Food and Nutritional Science.

Over the past year, we have seen goals met and exceeded, as well as new challenges undertaken and achieved. The department has received tremendous contributions from industry, government and the private sector, most notably, the donation to the university of the 12,300-acre Mattheis Ranch in southern Alberta.

As the largest gift of land ever received by a Canadian university, the ranch adds significantly to the agricultural and environmental research infrastructure of the university and places the department, the faculty and the university at the forefront of rangeland ecology and management research in North America.

This year, the department attracted a record \$43 million in external research funding, supporting world-class research that is delivering clear results. From the development of plastics from

vegetable oil, genetic tests to predict the potential of livestock, improvements in crop production, or nutritional strategies during chemotherapy, the innovations generated within the department have a substantial and immediate impact.

The establishment of the Phytola and Livestock Gentec Centres—thanks to \$4.5 million in funding from Alberta Innovates, Bio-Solutions, and with ongoing support from other funders such as the Alberta Livestock and Meat Agency - enable the Department of AFNS to provide unparalleled benefits to producers in Alberta through its focus on improved oil products and healthier, more efficient cattle.

A key element of the department's success has been the development of partnerships with government, industry and other stakeholders. Collaborative efforts such as the Biorefining Conversions Network, which links researchers with industry and entrepreneurs in the development of biomass resources, puts the department at the forefront of innovation in this growing bio-industrial sector.

Innovations in teaching excellence have also led to the creation of stimulating new courses that have attracted students from around the world. The high calibre of teachers in the department is demonstrated by such distinctions as the NACTA Fellow awards, given to Drs. Craig Wilkinson and Lynn McMullen, and the President's Achievement Award, presented to Dr. Frank Robinson and his colleagues for the "There's a Heifer in Your Tank" program.

The achievements and discoveries that have been made within this department over the past year go far beyond the borders of our campus. These accomplishments, which will, over time, be felt throughout many nations of the world, help improve the health and resilience of plant, animal and human life.

We are truly honoured to be leading such a visionary, world-class group and would like to extend our most heartfelt appreciation to each and every member of the department and our partners for making such innovations possible through their hard work and dedication.

**Dr. Erasmus Okine** – Chair  
Department of Agricultural, Food & Nutritional Science (AFNS)  
[afns-chair@ualberta.ca](mailto:afns-chair@ualberta.ca)

**Dr. John Kennelly** – Dean  
Faculty of Agricultural, Life & Environmental Sciences (ALES)  
[john.kennelly@ualberta.ca](mailto:john.kennelly@ualberta.ca)





Dr. Jonathán Curtis

## Replacing fossil fuels with renewable oils

Dr. Jonathan Curtis and his Lipid Chemistry Group (LCG) are developing processes to convert fats into chemicals that can be used in place of petroleum products.

The LCG has developed a method of producing polyol, a raw material used in the production of polyurethane, from canola and other vegetable oils. Using a mix containing about 50% of the plant based polyol to produce polyurethanes, the group has already made a wide range of foams, coatings, resins, adhesives and plastics.

Curtis' group has patented the process and is currently working with commercial manufacturers to build foam auto components and insulated drywall panels. Curtis feels that these partnerships will serve to demonstrate the quality of the products as well as the cost effectiveness of the process for companies attempting to reduce their environmental impact.

"The process is very versatile in that it can use canola oil or other

fats or oils," said Curtis. "A key deliverable will be to demonstrate that production can be cost efficient in order to convince industry that there is a strong case for commercialization." With the global market for polyurethane rising above \$10 billion per year, the potential economic benefits to oil seed producers are substantial.

"Alberta is a major oilseed producer. The type of products we have developed will give oilseed producers new potential markets through industrial applications" he added, "and farmers are more likely to get a stable price for oilseeds".

The research was largely funded by the Alberta Crop Industry Development Fund, along with funding from NSERC, Alberta Innovates – Bio Solutions and the Alberta Canola Producers Commission.

**Dr. Jonathán Curtis**  
780 492 6364 • [jonathan.curtis@ualberta.ca](mailto:jonathan.curtis@ualberta.ca)

## Biorefining Conversions Network gaining momentum

Delegates attending the 2nd annual BCN Strategic Retreat in Banff Alberta last November were informed of the exciting developments happening in the Bioconversions Network, headed by AFNS researcher David Bressler and funded in part by Alberta Innovates Bio-Solutions under CEO Stan Blade.

The retreat opened with an address by Alberta's then deputy premier, Doug Horner, who set a positive tone for the retreat as he conveyed an extremely encouraging outlook on the future of the bio-industrial sector.

The event was attended by 125 delegates including senior industry representatives and government officials as well as expert researchers from Alberta, across Canada, the US, and Europe. In addition to widespread representation from the forestry, agriculture, oil and gas, and chemical manufacturing sectors, there was a notable presence of smaller renewable energy companies and technology developers.

After observing the results that Bressler and his team have already achieved, industry leaders were quick to get on board and collaborate. Gas additives that increase fuel efficiency, along with plastics and biological oils that reduce pollutant levels, have all been synthesized from biological, environmentally friendly, renewable products such as seed oil and animal by-products, reducing the need for conventional petroleum.

"We've got a whole portfolio of products coming online," said Bressler. "We're getting more participation from the forestry sector and the energy sector. Everybody is interested in being a part of what's happening, so it's a really cool time right now."

Since his appointment in 2003, Bressler has worked in close collaboration with Alberta Agriculture and Rural Development, as well as the Bio-Industrial Technologies division, headed by Connie Phillips (Divisional Director), and Team Alberta, a collection of leaders from various Government of Alberta ministries. His diverse background in cell biotechnology, fermentation and chemical engineering is helping to bring together stakeholders who were previously hesitant to collaborate for fear that they might lose their competitive edge in their respective fields.

"The fact that my position is joint appointed with the provincial government means that I've always had a strong industry development tie," he said. "They came to me as somebody that could speak different languages, academically, and had a history of working with industry, and asked me to put together a network within the province."

**Dr. David Bressler**  
780 492 4986 • [david.bressler@ualberta.ca](mailto:david.bressler@ualberta.ca)

**Dr. David Bressler**



The Hon. Doug Horner,  
former Deputy Premier  
and Minister of AET

DOUG McFARLANE

## Nutrition researchers find new home in world class centre

The new state-of-the-art Li Ka Shing Centre for Health Research Innovation is now home to a team of nutrition researchers and their support staff, enabling closer collaboration with researchers from a broad spectrum of faculties.

The centre, which includes one of only two state-of-the-art Whole Body Calorimeters in Canada, is the product of a \$28 million dollar grant from the Li Ka Shing Foundation, along with \$52.5 million in related funding from the Government of Alberta.

Drs. Tom Clandinin, Spencer Proctor, Donna Vine, Diana Mager, Linda McCargar and Rene Jacobs recently moved their research laboratories to the Li Ka Shing Centre, joining Drs. Rhonda Bell, Catherine Chan, Catherine Field and Vera Mazurak, who located there two years ago.

Dr. Linda McCargar, Director of the Human Nutrition Research Unit (HNRU) and professor with the Department of AFNS, attests that the benefits of the new facility will be well worth the move.

"The new clinical research unit is a wonderful facility for human research studies," she said. "It will be great to have nutrition, diabetes and obesity researchers all working together in one unit to enhance

our collaborative research programs." The faculty members will be sharing the space with their counterparts from the Faculty of Medicine & Dentistry.

The HNRU has been located in the Agriculture/Forestry Centre for almost 10 years, during which time it has undertaken such initiatives as the Alberta Pregnancy Outcomes and Nutrition (APRON) study, the Physical Activity and Nutrition for Diabetes in Alberta (PANDA) research project, as well as an extensive number of studies related to nutrition, metabolism and human health.

The team members echoed Dr. McCargar's sentiments that their new location will present even greater opportunities for enhanced research and discovery.

"There is a great potential for increased multi-disciplinary and interdisciplinary research," said Dr. Chan, Director of the Human Nutrition Division. "The new research laboratories are of the highest standard and conducive to enhanced collaborations between colleagues working in related areas."

**Dr. Linda McCargar**  
780 492 9287 • [linda.mccargar@ualberta.ca](mailto:linda.mccargar@ualberta.ca)

**Dr. Catherine Chan**  
780 492 9939 • [cathy.chan@ualberta.ca](mailto:cathy.chan@ualberta.ca)



Dr. Linda McCargar and  
Dr. Catherine Chan



## It's the gift of a lifetime

Alumni Edwin and Ruth Mattheis donated their 12,300-acre ranch to their alma mater this year. The gift ensures the land will forever remain a working ranch and will provide the university with outstanding research and teaching opportunities in rangeland and pasture management.

In light of the historic gift, the university is establishing the Mattheis Chair in Rangeland Ecology and Management.

The ranch, to be named the University of Alberta Rangelands Research Institute – Mattheis Ranch, is located near Duchess, 150 km east of Calgary. It adds to the agricultural research infrastructure of the university, placing it squarely in a leadership position in rangeland ecology and management research.

In accepting the gift, University of Alberta president Indira Samarasekera pointed out that its impact on scientific research and learning is what is most important.

"No other university in Canada has access to a natural research lab of this kind—indeed only a very few universities in all of North America have the rangeland resource that the U of A now has," she said.

"Research will be conducted on a wide variety of rangeland ecology and management issues including grasslands ecology, carbon sequestration and storage, the impact of climate change on mixed-grass prairie, land reclamation and water optimization."

A teaching and extension program will take place, added John Kennelly, dean of the Faculty of Agricultural, Life & Environmental Sciences.

"Various aspects of applied ecology, grazing management, livestock husbandry and production economics for the mixed-grass prairie region will be examined," he said.

The ranch complements the university's agricultural research infrastructure, which includes the 12,000-acre Kinsella ranch in central Alberta, the 800-acre St. Albert Research Station used for crops research, the Breton Plots used for soil research and the numerous facilities on South Campus.

Edwin Mattheis, BSc (Eng) '57, and Ruth, BA '58, bought the ranch in 1977. By donating their ranch, for which they have a special attachment, the Mattheis' are ensuring the land use will remain the same and that it will be used following the principles of sustainable rangeland management and act as a focal point for research and education.

The couple has been conducting their own research for a number of years, including testing and analysis of groundwater, monitoring of weed and wildlife presence and distributions and the collection of weather data.

**Dr. Edward Bork**  
780 492 3843 • [edward.bork@ualberta.ca](mailto:edward.bork@ualberta.ca)

**Dr. Barry Irving**  
780 220 1142 • [barry.irving@ualberta.ca](mailto:barry.irving@ualberta.ca)



L to R: Ruth and Edwin Mattheis, Dr. John Kennelly, Dr. Indira Samarasekera



L to R: Dr. Randall Weselake, the Hon. Jack Hayden, Minister of ARD, and the Hon. Doug Horner, former Deputy Premier and Minister of AET

## \$4.5 million for new agricultural centres

Then Deputy Premier Doug Horner and Minister of Agriculture & Rural Development Jack Hayden joined U of A Provost Carl Amrhein and an assembly of industry and academic representatives to witness the launch of two new agricultural research centres at the U of A in early January.

Led by two top researchers from the Department of AFNS, the new centres in oilseed and livestock research are being supported by \$4.5 million over two years from Alberta Innovates Bio Solutions.

Phytola, headed by Randall Weselake, focuses on developing strategies that will improve the quantity and quality of oil in crops such as canola and flax. Livestock Gentec, led by Stephen Moore, a world leader in livestock genomics research, will research ways to produce healthier, more efficient cattle that produce better beef and dairy products.

"The work these people do at the U of A is unbelievable," said Hayden, "This is one of the top research institutions in the world, and today's announcement will take it one more step."

According to Amrhein, both centres will serve to bring together experts in agricultural biotechnology and to provide connections to respected national and international networks, demonstrating the university's vibrant partnership with government and its commitment to the agricultural industry.

**Dr. Randall Weselake**  
780 492 4401 • [randall.weselake@ualberta.ca](mailto:randall.weselake@ualberta.ca)

**Dr. Stephen Moore**  
780 492 0169 • [stephen.moore@ualberta.ca](mailto:stephen.moore@ualberta.ca)

## New service lab will speed up delivery to producers

A new service laboratory that will deliver Livestock Gentec's products and services to producers will be established in the coming months, thanks to funding from Western Economic Diversification.

Minister Lynne Yelich announced that the federal government is investing \$3.5 million towards the establishment of the new facility, which will be located at Enterprise Square.

"By providing access to important technologies and services, this facility will help the Canadian livestock industry produce higher quality and more cost-efficient products," she said. "This means that producers can grow and create more jobs and opportunities in our communities."

Dr. Stephen Moore, CEO of Livestock Gentec and professor in the Department of AFNS, said his group realized that in order to get the technologies they're producing out of the lab and into the hands of producers, they needed a better delivery system.

"This funding will allow us to do that across Canada," he said, adding that the development of the business operations of the service lab will be done with the assistance of TEC Edmonton.

Moore speaks from experience. With 33 active patents and 15 invention disclosures captured in 4 exclusive licenses, he has licensed more invention disclosures than any other inventor at the U of A.

**Dr. Stephen Moore**  
780 492 0169 • [stephen.moore@ualberta.ca](mailto:stephen.moore@ualberta.ca)



The Hon. Lynne Yelich, Minister of WED and Dr. Steve Moore



## Natural carbohydrates reduce need for antibiotics

Research conducted by Dr. Michael Gänzle and Dr. Ruurd Zijlstra has shown that naturally occurring carbohydrates from certain foods can help reduce the need for antibiotics in animal production.

The AFNS researchers have shown that lactobacilli found in certain fermented foods, such as yogurt, cheese and sourdough, produce a range of interceptive carbohydrates with the ability to attach to receptors on harmful toxins and pathogens, preventing them from attaching to targets in the intestine and initiating disease. If proven effective these products could be used as additives in food and animal feed to decrease the incidence of disease.

The results could prove to be of great value to the global agricultural industry. Many European countries have banned the use of antibiotics in animal feed due to growing concerns over the diminishing effectiveness of some antibiotics.

“In animal production, farmers often use antibiotics at low concentrations in the diet as a feed additive,” said Gänzle. “This can help to reduce incidents of illness and increase weight gain. The problem is that this practice contributes to antibiotic resistance, which can be passed on to humans.”

Gänzle feels that an additional application of his research could be the improvement of infant formula, which currently does very little to inhibit pathogen adhesion.

Through funding granted by the Natural Sciences and Engineering Research Council of Canada (NSERC), Gänzle and Zijlstra are in the process of establishing an extensive library of various carbohydrates and their applications, and although the use of antibiotics is far from obsolete, this research holds promise for delivering products that may reduce dependence on them.

“There’s never going to be a single compound that can replace antibiotics,” said Zijlstra, “but there is no doubt that the use of these carbohydrates will prove to be a very important piece of the puzzle.”

**Dr. Michael Gänzle**

780 492 0774 • michael.gaenzle@ualberta.ca

**Dr. Ruurd Zijlstra**

780 492 8593 • ruurd.zijlstra@ualberta.ca



Dr. Michael Gänzle  
and Dr. Ruurd Zijlstra

## Pest-resistant canola catches ASTech award

Dr. Lloyd Dosdall's development of a weevil resistant strain of Canola was a major factor in his receipt of the 2010 Alberta Science and Technology (ASTech) award sponsored by Dow AgroSciences Canada Inc., but he believes that lab work is only one of the factors that earned him the recognition.

The AFNS professor and researcher has travelled thousands of miles throughout Western Canada in order to make sure the benefits of his research are reaching the people that need it.

"I've worked a lot with farmers to ensure that research results don't just sit in refereed journals. I think it's just as important to get out there and give the growers the information so that they can apply it," said Dosdall. "It's not just about doing research. It's also about doing the legwork. If we find that tilling is very hard on a pest's natural enemies, we get that information to the farmers so that they can make informed decisions."

The development of the weevil-resistant canola is the result of over ten years of research, and the cross-breeding of canola, which is susceptible to attack from the Cabbage Seed Pod weevil, and white mustard, which is wholly resistant to the pest. The appearance and odour of the new strain are unattractive to the weevils, and deter eggs from hatching and larvae from developing.

The financial benefits of pest resistant crops are easily discernible, given that farmers no longer have to purchase the necessary chemicals, but the benefits don't end there. Pesticide-free crops



Dr. Lloyd Dosdall

reduce the amount of toxins that growers add to the environment and add value for consumers worldwide who are increasingly leaning towards pesticide-free products.

"The world population has gotten a lot more concerned about pesticide residues," said Dosdall. "By keeping their usage down, we've really increased the 'green' value of our product, and if we can find ways to break these dependencies we have, everybody benefits."

**Dr. Lloyd Dosdall**  
780 492 6893 • [lloyd.dosdall@ualberta.ca](mailto:lloyd.dosdall@ualberta.ca)

**Dr. Lloyd Dosdall and Tyler Groeneveld, Market Manager, Dow AgroSciences Canada Inc.**



PHOTO COURTESY OF ASTECH FOUNDATION  
BY RED DOOR PHOTOGRAPHY

## New extraction method earns Premier's Award

Drs. Feral Temelli and Thava Vasanthan were honoured this past July with the 2010 Premier's Food for Health Award for their development of a cost-effective method of extracting beta-glucan, a substance shown to reduce cholesterol and regulate blood sucrose levels, from oats and barley.

Until the development of this method, there was no cost effective way to isolate and market beta-glucan as the process of removing it from the other grain components degraded its structure and therefore compromised its health benefits.

"If you just rely on barley and oats, you will have to eat around four bowls of oatmeal every day to be able to get the three grams of recommended beta-glucan to see these health benefits," Temelli said. "Obviously, that's not a practical approach."

Although traditional technologies extract beta-glucan from cell walls of grain endosperm, Temelli and Vasanthan's technology minimizes degradation of the molecule by leaving it in the cell wall and selectively removing other cell components, such as starch and proteins. The end product is Viscofiber®, which is a beta-glucan concentrate currently used in various supplements and is being tested as an ingredient in a number of food items. To date five patents have been filed internationally to protect the intellectual properties attributed to the technology, product and its applications. The French ingredient company Naturex currently owns the license to the patents and is manufacturing and marketing Viscofiber®.

In addition to the patents, Drs. Temelli and Vasanthan have

published in a number of reputable journals and participated in collaborative research studies, both locally and nationally, establishing the uniqueness of Viscofiber® in relation to its chemical, functional and nutritional properties.

### Dr. Feral Temelli

780 492 3829 • [feral.temelli@ualberta.ca](mailto:feral.temelli@ualberta.ca)

### Dr. Thava Vasanthan

780 492 2898 • [thavaratnam.vasanthan@ualberta.ca](mailto:thavaratnam.vasanthan@ualberta.ca)



Dr. Feral Temelli and  
Dr. Thava Vasanthan

## Former Dean inducted into Agriculture Hall of Fame

Ian Morrison, former dean of the then-Faculty of Agriculture, Forestry and Home Economics, was inducted posthumously into the Alberta Agriculture Hall of Fame last October.

Morrison, who passed away in 2006, was a tireless steward of the land. His research accomplishments, as well as his administrative policies, were designed to help farmers reach profit goals and achieve goals leading to environmental sustainability.

His work on herbicide resistant weeds

resulted in considerable savings in herbicide and application costs, and helped prevent an escalation of the weed resistance problem in Western Canada. As an educator, Morrison was considered a visionary and accomplished administrator, committed to training students to contribute to Alberta's agricultural communities.

Morrison's role in the advancement of Alberta and Western Canadian agriculture was immense and continues through those he mentored and influenced, in his various positions.



Dr. Ian Morrison



## New canola strain counters frost damage

Researchers within AFNS have developed a new strain of canola that matures earlier in the growing season, reducing the risk of loss of seed yield and low oil quality due to early frost.

Argentine canola is the most common canola crop grown in Canada and is popular with farmers due to its high yield. Unfortunately, it has a relatively long life cycle.

The Canadian climate always carries a measure of unpredictability, and early frost can often result in poor yields and seed oil quality. Researchers have been experimenting with crops that can be taken from seeding to harvest in a shorter time span in order to minimize the potential damages brought about when temperatures drop sooner than expected.

According to Dr. Habibur Rahman, the principal investigator of the project, some innovative thinking was initially required, but now that the plant has gone from the drawing board into potting soil, the results are looking very promising.

"We had to think untraditionally," said Rahman. "Everyone thought that because the cabbage/cauliflower type plants flowers much later than canola, there was nothing to be worked on with that side of the plant, but I thought, 'No, there has to be some earliness genes here that we can work with.'"

The new variety matures, on average, a full week earlier than the Argentine strain and could significantly reduce the instances of frost damaged canola crops, improving the bottom line for producers.



Dr. Habibur Rahman

**Dr. Habibur Rahman**

780 492 3869 • [habibur.rahman@ualberta.ca](mailto:habibur.rahman@ualberta.ca)

## Isolating genetically modified crops

After a recent setback to the export of Canadian flax, researchers within AFNS are perfecting an organic method of keeping genetically modified seeds within their intended borders.

Since the 2009 ruling by the European Union to suspend import of Canadian flax seed after traces of Triffid, a modified strain of the seed, were discovered in German cereal and bakery products, Canadian farmers have seen demand and prices for the commodity suffer to the tune of \$320 million.

Although the market for flax is predicted to bounce back once the embargo is lifted, the current challenge lies in preventing similar incidents from taking place in the future. Dr. Linda Hall, with the Department of AFNS, has taken on the challenge of keeping genetically modified pollen and seeds from spreading to areas planted with their organic counterparts.

"We're working with researchers here to develop modified flax that has enhanced Omega-3 fatty acids," said Hall, "but prior to doing that work, we need to establish how we're going to confine it."

Hall's solution involves a simple strip of the plant, known as a "trap crop", planted on the borders of the field to attract pollen that would otherwise drift into adjacent areas.

"Basically you're putting up a bunch of biological sticky pads that catch the pollen as it moves past," said Hall. "Then the crop in the trap row is destroyed prior to the seed forming, which stops pollen moving in both directions."

The low cost, ease of implementation and effectiveness of this method means good news for farmers on both sides of the debate over genetically modified seeds.



Kimberly Walsh  
and Dr. Linda Hall

**Dr. Linda Hall**

780 492 3281 • [linda.hall@ualberta.ca](mailto:linda.hall@ualberta.ca)



Dr. Wendy Wismer

## Improving Quality of Life for Cancer Patients

A study released in February of 2011 by Dr. Wendy Wismer, associate professor in the Department of AFNS, has shown that delta-9-tetrahydrocannabinol, or THC—the active psychoactive ingredient in marijuana—has the ability to improve the taste and enjoyment of food in advanced cancer patients with diminished appetites.

Wismer, who penned the study along with graduate student

Tristin Brisbois, as well as doctors from the departments of oncology from the University of Alberta and McGill University, demonstrated benefits that go beyond merely allowing patients to enjoy eating again. Lack of appetite can lead to a lower body mass which can, in turn, reduce an individual's ability to endure their condition.

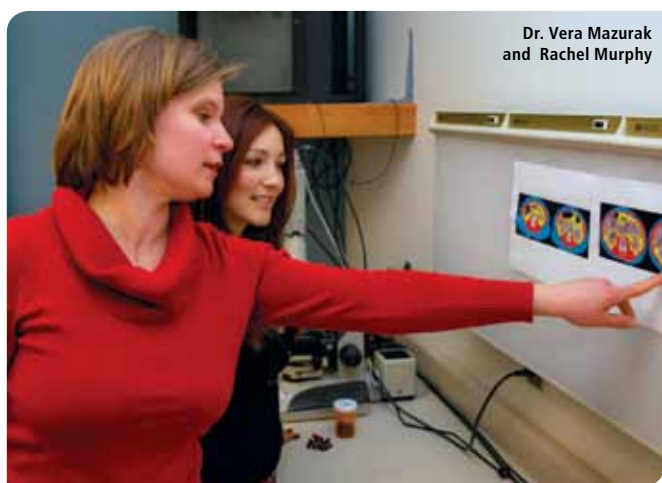
Although the study did not see an increase in the calories consumed by the individuals taking the drug over the placebo group, it did show that they ingested a greater amount of protein. Wismer said that these results are encouraging from a “quality-of-life” point of view.

“In the advanced-cancer population, there is a real struggle with appetite,” she said. “We know from our earlier work that individuals with advanced cancer have diminished appetite and have to make a conscious effort to eat. So, although THC did not significantly increase total calorie intake, the fact that it improved appetite and protein intake is important.”

“I would hope the results of this study help make obtaining THC easier for patients, particularly given the fact that there were other benefits as well,” she added. “Patients enjoyed better quality of sleep and relaxation and everyone involved in the study said they were less depressed.”

**Dr. Wendy Wismer**

780 492 2923 • [wendy.wismer@ualberta.ca](mailto:wendy.wismer@ualberta.ca)



Dr. Vera Mazurak  
and Rachel Murphy

## Fish oil enhances effects of chemotherapy

Daily doses of fish oil improve the efficiency of chemotherapy, may contribute to increased survival and help prevent muscle and weight loss that commonly occurs, new research reveals.

Dr. Vera Mazurak, assistant professor of nutrition and metabolism in the Department of AFNS, led the study that examined various

effects of fish oil, specifically two important fatty acids in fish oil, on lung cancer patients undergoing chemotherapy. In the first instance, they compared the effectiveness of the chemotherapy in shrinking tumours and the rate of survival after one year.

In the group of 15 patients who received fish oil on a daily basis, 60 per cent saw a reduction in the size of their cancerous tumour compared to 28.5 per cent who obtained the same result from the control group of 31 who did not receive fish oil. In addition, 60 per cent of the group who took fish oil survived beyond a year compared to 39 per cent of the group that didn't take it.

An additional trial involved 16 patients who took fish oil (2.2 grams of eicosapentaenoic acid/day) and 24 patients who did not. The researchers found that 69 per cent of patients taking fish oil maintained or gained muscle mass compared to 29 per cent from the group who didn't receive the fish oil.

“Fish oil may also prevent loss of weight and muscle by interfering with some of the pathways that are altered in advanced cancer,” said Dr. Mazurak. “This holds great promise because currently there is no effective treatment for cancer-related malnutrition,” she added.

**Dr. Vera Mazurak**

780 492 8048 • [vera.mazurak@ualberta.ca](mailto:vera.mazurak@ualberta.ca)



## Engaging teaching techniques recognized

Demonstrating the level of teaching excellence within the department, Drs. Lynn McMullen and Craig Wilkinson each received Fellow awards from the North American Colleges and Teachers of Agriculture this past year.

These awards come as no surprise to the individuals who have had the pleasure of working with these professors. Dr. McMullen has been with the Department of AFNS for 16 years, and is respected by staff and students alike. Her down-to-earth, hands-on approach to teaching keeps her students engaged and gives them an appreciation for learning, as well as the hard skills they need to excel in industry. She is relentless in her efforts to attract and motivate students, and employs innovative, dynamic teaching methods in order to keep her courses current, relevant and stimulating.

“Dr. McMullen takes an interest in each one of her students’ lives, and as a result, enriches their university experiences,” said Nutrition and Food Science student Michelle Beveridge. “She embodies what I believe the university experience should be – an experience about further learning, education and the motivation to strive to excel to the best of your abilities.”

Dr. Wilkinson, Director of Animal Care within the faculty, is equally deserving of this illustrious award for many of the same reasons. His devotion to his students’ success and his tireless resolution towards maintaining a curriculum that is both engaging and educational has earned him the gratitude of his students along with the admiration



Dr. Craig Wilkinson  
and Dr. Lynn McMullen

of his colleagues.

Dr. Frank Robinson, Vice Provost and Dean of Students, said Wilkinson, “defines the high ideals of scholarship and commitment to top learning that set the standard for many in our department to aspire to.”

The department would like to extend heartfelt congratulations to both Dr. McMullen and Dr. Wilkinson on this illustrious honour.

**Dr. Lynn McMullen**  
789 492 6015 • [lynn.mcmullen@ualberta.ca](mailto:lynn.mcmullen@ualberta.ca)

**Dr. Craig Wilkinson**  
780 492 2934 • [craig.wilkinson@ualberta.ca](mailto:craig.wilkinson@ualberta.ca)

## President’s Achievement Award Dare to Discover

Dr. Frank Robinson has already had an exceptional career with the University of Alberta that began in 1986 when he started teaching poultry science. This year Dr. Robinson, along with AFNS affiliates Martin Zuidhof, Craig Wilkinson, Dana Penrice, Nick Wolanski, Cynthia Fawcett, Alex Pasternak and Jack Francis, won the President’s Achievement Award – Dare to Discover for “There’s a Heifer in Your Tank”, an innovative teaching initiative which has drawn students from all backgrounds to the Animal Science 200 class. Dr. Robinson was made associate dean of the Faculty of ALES in 2005, was inducted into the Alberta Agriculture Hall of Fame in 2006, won the 3M National Fellowship for Teaching Excellence in 2007, and this year was appointed to a five year term as Vice-Provost and Dean of Students.



Dr. Frank Robinson





Dr. Lech Ozimek



Dr. Monokombo Swaminathan

## Acclaimed geneticist receives honorary doctorate

The U of A awarded Dr. Monokombo Sambasivan Swaminathan an honorary Doctorate of Science on October 7th, 2010, in recognition of his 50 years of work in agricultural research and the remarkable global impact of his accomplishments. He has been credited with spearheading the Green Revolution in Asia and continues to work in collaboration with students and colleagues in order to bring agricultural innovations to the poorest in society.

## Professor takes U of A's promise abroad

Dr. Lech Ozimek, professor of Dairy Processing Technology & Food Product Development in AFNS since 1982, has been battling jet lag, culture shock, time changes and foreign languages in his tireless efforts to share the benefits of the U of A's research and innovation with the international community.

Since the beginning of his sabbatical leave in July 2010, Ozimek has given lectures at international conferences in Poland, Mexico and Cuba, and as of this past January, he has been collaborating with colleagues at the Magdalena University in Colombia.

In case that wasn't enough ground covered in a six-month period, Ozimek spent six weeks in Mongolia where he initiated the development of a dairy processing course at the Inner Mongolia Agricultural University.

"There is no question in my mind that China, with a population of over 1.3 billion, is in the market not only for industrial commodities but for knowledge as well," said Ozimek. "Students there are

hungry to acquire current knowledge and technology in the strong belief that education will help them to transform their lives and better prepare them for future challenges, both domestically and internationally."

Although Ozimek has spent the vast majority of his sabbatical abroad, he still views his travels as a means of establishing ties between foreign experts and his colleagues here at home.

"I am focusing on the development of research collaboration, the exchange of ideas, meeting new people and learning new cultures," he said. "I see myself as an ambassador for the University of Alberta and believe that my work will attract new staff and students to our campus. I believe these aspects of my current activities during sabbatical will bring benefits to all involved parties in years to come."

**Dr. Lech Ozimek**

780 492 2665 • [lech.ozimek@ualberta.ca](mailto:lech.ozimek@ualberta.ca)

## Kate Storey

### Former grad student refashions obesity research

Since the completion of her postdoctoral fellowship in 2010, former AFNS doctoral student Kate Storey has been working with the School of Public Health at the University of Alberta in an attempt to change attitudes towards nutrition and physical activity among young Albertans. The intervention strategies aim to change the school and community environments, in order to make the 'healthy choice the easy choice' where we live, work, learn and play.

Storey's research takes a novel approach to evaluating the process, impact, and outcome of school-based chronic disease prevention interventions. She is taking measure of the school community, including the perceptions, relationships and interactions of stakeholders as well as the habits of schoolchildren and attempts to find ways to improve the intervention in order to promote healthier lifestyles.

Studies using this intervention yielded encouraging results, but according to Storey, their interpretation is the key to reproducing the benefits.

"If it does appear that the intervention is taking effect, if kids are eating more fruits and vegetables and kids are being more active, then we need to evaluate how and why those habits are taking place. You need to look at the answers behind the numbers."

Those answers, Storey hopes, will lead to a dramatic decline in both childhood obesity and the ensuing problems such an affliction causes later in life.



LAUGHING DOG PHOTOGRAPHY



## Kate Shoveller

### Giving back to man's best friend

After finishing her PhD in Nutrition & Metabolism, Kate Shoveller embarked on a few different professional endeavours before deciding to devote her career to man's best friend.

In 2007, she began a technology development position with Procter & Gamble Pet Care in Mason, Ohio. Since then, Shoveller has devoted her career to improving the quality and nutritional value of pet food. Recently promoted to the senior scientist position, she says the environment is perfectly suited to her love of scholarship as well as her desire to make a positive impact.

"I work with more PhD nutritionists here than I would in any academic setting, which is exciting for someone as geeky as I am" she laughed. "You get to do really great research, but you can also make a really large impact on the lives of animals."

Shoveller says her direction was influenced by a lifelong love of animals, as well as an inspirational team of mentors during her time with AFNS.

"My entire committee had very high expectations for the type of scientist that I was going to become, and I think that without their expectations of excellence, my career would have been a lot more limited. I was just fortunate to have the opportunity to work with such wonderful scientists."

For graduate program information, please contact  
Nicole Dube, Graduate Recruitment and Internship Advisor  
780 492 8641 [afns.grad@ualberta.ca](mailto:afns.grad@ualberta.ca)





**Stefan Meyer**

## Agriculture degree leads to global career

"I'm not sure how I got here. It really is a bit crazy." That's how AFNS graduate Stefan Meyer (B.Sc. Ag. 2007) describes his current situation – working as a commodities trader for FCStone in Sydney, Australia. He brokers grain between most of the global trading houses. His resume also includes jobs in agronomy and ice road construction, and every year he takes time off to help with planting and harvesting at the family farm near Grande Prairie.

Although Stefan says he has been "lucky wherever I've gone," it's clear that his fearlessness and willingness to take risks have been significant factors in his success, along with his ability to easily connect with people, an attribute he developed at the U of A. "At ALES, I was surrounded by great professors who nurtured me. I was also Student Liaison for ALES, which taught me how to interact with all kinds of people. I had a blast at the U of A."

For undergraduate program information, please contact  
**Faculty of Agricultural, Life & Environmental Sciences**  
Student Services office at [questions@ales.ualberta.ca](mailto:questions@ales.ualberta.ca)

**Kristyn Edge**

## For the love of a chocolate bar

There are likely very few people who have translated their love of a chocolate bar into a full-time job, but Kristyn Edge (B.Sc. Nutrition and Food Science, 2009) has done it. Her fondness for Cadbury Dairy Milk, combined with an impending move from Alberta to England, prompted her to seek out a job with the British candy-maker. She now works for Cadbury as a consumer scientist. "I organize, run, collect and analyze the data for chocolate, gum, and candy tastings. We work with all the Cadbury products and brands world-wide to ensure that they remain true to their outstanding reputation."

Food science was not initially in Kristyn's career plan. She attended U of A for one year of general science, then put her studies on hold to perform with Disney on Ice. "After four years, my husband (then fiancé) and I decided that it was time to move into real life. I applied to the Nutrition and Food Science program. It was the right move for me."

Kristyn says her interest in sensory science was inspired by the "Principles of the Sensory Evaluation of Foods" course she took in her fourth year. "AFNS gave me a great grounding in science and I want to continue to gain experience working in industry. There is a growing market for the use of sensory science. Many major companies pour hundreds of millions of dollars into sensory and consumer science to gain a further understanding of their consumers and ensure that their products make the mark."





# retirements

## Academic retirements



**Ron Ball** – Dr. Ron Ball has been working with the Department of AFNS since 1997 as a professor of swine nutrition and has had a major impact on his 50 graduate students along with hundreds of undergraduates. He has more than 800 published articles, and has given over 250 lectures. His list of awards and achievements include several from the Canadian Society of Animal Science, the Canadian Society of Nutritional Sciences and the American Society for Nutritional Sciences. Most recently, the 2011 Banff Pork Seminar created the RO Ball Young Scientist Award and the 2011 Alberta Pork Congress presented him with the Lifetime Achievement Award in recognition of his many contributions and years of service. Ron’s knowledge, drive and endearing personality will be deeply missed by his colleagues and students alike.



**Jerry Leonard** – After 25 years of teaching and studying through the University of Alberta, 17 of those within the Department of AFNS, Dr. Jerry Leonard, a professor of bio-resource engineering, is hanging up his lab coat. He served on numerous committees and won a myriad of awards, including the NACTA teaching award, the Faculty of Engineering Teaching Award (three times), as well as the CSAE, John Clark and Canadian Agricultural Engineer of the Year Award. Jerry continues to work with the Edmonton Waste Management Centre of Excellence as a Special Projects Associate and facilitates collaborative initiatives between the City of Edmonton and the U of A.



**Maureen Mackay** – In July 2010, Maureen McKay, Coordinator, Integrated Dietetic Internship, retired from AFNS and the internship program after more than three decades of service to the university. Maureen worked to establish the first dietetic internship program at the University of Alberta and laid the foundation for the growth of the profession in the province. Today, thanks to Maureen’s vision and efforts, the Integrated Dietetic Internship provides training to more than 60 dietetic interns, internationally trained dietitians, and upgrading practitioners each year. Since retirement she has enrolled in the university’s fine arts certificate program and prepares practical resources and food tips for those with celiac disease.

## Support staff retirements

This year saw the retirement of three staff members who were core to the department for many years. **Len Steele** was with the department for 38 years and played a vital role in providing assistance and expertise over a wide range of disciplines including teaching support to labs, research support, and chemical safety. **Bruce Alexander**, a 29-year mainstay, was highly respected by his colleagues for his ability to keep the multi-user greenhouse facility running smoothly. Bruce’s knowledge of the

facilities, experimentation, and plant production made him an invaluable resource in supporting the research and teaching functions of the greenhouse facilities. **Doreen Lawrence** was with the department for almost 20 years, first working in administration and later in finance for the Edmonton Research Station where she provided outstanding support to the ERS unit managers and south campus staff. We wish Len, Bruce and Doreen the best of luck in retirement.

# non academic staff awards

## AFNS Outstanding Award recipients



L to R: Jody Forslund, Francine Hodder, Emily St. Pierre, Linda Callan, Tara Newman, Agnes Pieracci, Holly Horvath, Chris Hsin, Sandy Doerr, Andrea Gougeon, Debby Topinka, Sharon Chan and Sharon Katzeff

### Outstanding Support for Research Activities (South Campus):

#### Jay Willis

Jay Willis' job title is Unit Manager for the Swine Reproduction Technology Centre (SRTC). The SRTC is one of the busiest research units within AFNS. Jay has to manage detailed research procedures, while at the same time managing a research herd that has animal colony characteristics. He has guided his unit to a level of financial sustainability that the unit has not experienced in over a decade.

### Outstanding Support for Teaching: Dana Penrice

Dana Penrice's job title is Coordinator - "There's a Heifer in Your Tank" (HIYT) Program; Dana was nominated by her supervisor and received several supporting letters from students and staff for her nomination. She graduated with a BSc (Agric) in 2007 and immediately joined the HIYT team which puts together learning opportunities in Animal Science 200. For the past three years, Dana has worked hard to make the HIYT program the success it has become. She has been instrumental in refining this program and making the plans of the instructors come to life and has established a very strong rapport with current students/prospective students and community-based agriculture programming. One of her supporters says it all, "Without Dana, I do not believe the faculty would be as warming and efficient as it is. She is just awesome."

### Outstanding AFNS "booster": Patrick Ball

Patrick Ball's job title is a Technical Staff member in the computer support area. Patrick is one person that can always be counted on when a computer crisis arises. He is always dependable and always has a smile on his face. He is the unsung hero in AFNS.

### Outstanding Support for Administration

#### (Team Award – North Campus)

Holly Horvath, Tara Newman, Cindy Rowles, Sandy Doerr, Francine Hodder, Linda Callan, Chris Hsin, Sharon Chan, Andrea Gougeon, Agnes Pieracci, Debby Topinka, Emily St. Pierre, Jody Forslund, Sharon Katzeff provide the administration support to the department. This team is a very reliable, fantastically friendly group who the department can count on at all times and are most deserving of this award.

### Outstanding Support for Research Activities

#### (Team Award – North Campus)

Sharon Sokolik & Kristina MacNaughton are laboratory technicians supervised by Dr. Spencer Proctor. Sharon and Kristina are both highly deserving of this award as they have a proven track record of strong dedication to the MCVD Lab, AFNS and the University. Practically, this award will acknowledge their performance for a job well done.

## 2010 - 2011 Granting Agencies

Advanced Foods & Material Network  
Agriculture & Agri-Food Canada  
(AAFC)

Agriculture Consortium consists of:

- Agriculture and Food Council (AGFC)
- Alberta Innovates — Bio Solutions (AI Bio)
- Alberta Crop Industry Development Fund Ltd. (ACIDF)
- Alberta Livestock and Meat Agency Ltd. (ALMA)
- AVAC Ltd.
- Alberta Barley Commission (ABC)
- Alberta Canola Producers Commission (ACPC)
- Alberta Chicken Producers (ACP)
- Alberta Egg Producers (AEP)
- Alberta Milk (AM)
- Alberta Pork (AP)
- Alberta Pulse Growers Commission (APGC)

Ajinomoto Company Inc.

Alberta Advanced Education & Technology  
(AAET)

Alberta Agriculture & Rural Development  
(AARD)

Alberta Beef Producers (ABP)

Alberta Centre for Child, Family &  
Community Research

Alberta Egg Producers Board

Egg Farmers of Canada

Alberta Life Sciences Institute

Alberta Sustainable Resource  
Development

Alberta Turkey Producers

Apache

ASPEN Rhoades Research Foundation

BASF Canada

Bayer CropScience Canada

Becker Underwood Canada

BioNeutra

Canola Council of Canada

Canadian Cattlemen's Association

Canadian Foundation for Dietetic  
Research

Canada Foundation for Innovation

Canadian Institutes of Health Research

Canadian Lipoprotein Conference

Canadian Liver Foundation

Canadian Poultry Research Council

Canada Research Chairs

Canadian Swine & Research Development

Compton Petroleum

Dairy Farmers of Canada

Danisco UK Ltd.

Dow Agrosiences Canada

DSM Nutritional Products

DuPont Canada

Genesis Genetics Inc.

Genome Alberta

Genome B.C.

Genome Prairie

Hypor

International Development Research  
Centre (IRDC)

Intervet Canada

L'Alliance Boviteq Inc.

Linnaeus Plant Sciences Inc.

Mazankowski Heart Institute

MITACS Inc.

National Institutes of Health (NIH)

Natural Sciences and Engineering

Research Council of Canada (NSERC)

Olds College

Ontario Pork

PIC North America

Pioneer Hi-Bred Production LP

Poultry Industry Council

PrioNet Canada

Sanimax

Saskatchewan Pulse Growers

SHAC Environmental Products Inc.

Sinoveda Canada Inc.

Syngenta

Three Feather Farms

University of Alberta — Internal

University of British Columbia

University of Calgary

University of Saskatchewan

University of Victoria

University of Waterloo

Vitalus

Viterra

Western Economic Diversification

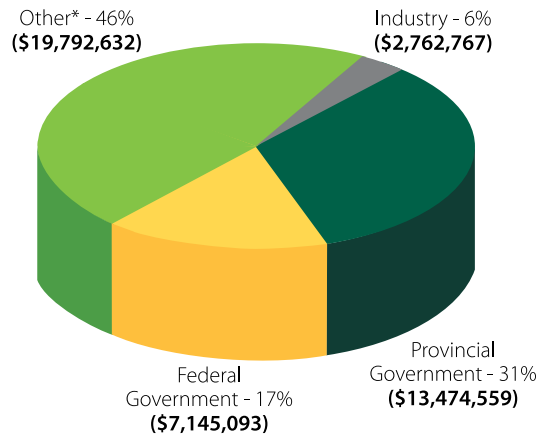
Canada

Western Grains Research Foundation  
(WGRF)

The staff and academics with the Department of AFNS wish to extend their sincere thanks to Darrel Petras, Jayant Kumar and the rest of the exceptional team at TEC Edmonton for their ongoing support of cutting-edge agricultural research and innovation.



## Research Funding \$43,175,052



\*Not for Profit and Individuals, Endowment, Sales and Investment Income

## Operating Budget \$9,968,393

Distribution of Operating Budget

- 59% Academic & Teaching Support
- 10% Administrative & Computing Support
- 11% Central Laboratories
- 20% Research Stations

## Academic Staff

- 64 Professors (including AAFC and ARD academic affiliates/cross and joint appointments)
- 27 Adjunct Professor
- 54 Postdoctoral Fellows
- 29 Research Associates
- 7 Visiting Scientists

**276** Refereed publications

**494** Extension publications/presentations

## Undergraduates enrolled in degree programs

|   |            |
|---|------------|
| BSc Agriculture (includes Pre-Vet Medicine) | 211        |
| BSc Agricultural/Food Business Management   | 58         |
| BSc Nutrition & Food Science                | 548        |
| BSc Animal Health                           | 80         |
| <b>Total</b>                                | <b>897</b> |

## Graduate Student Enrolment

|              |            |
|--------------|------------|
| Masters      | 130        |
| Doctoral     | 114        |
| Visiting     | 4          |
| <b>Total</b> | <b>248</b> |

**59** New graduate students started in 2010/11

**40** Graduate students convocated in 2010/11

## Central Laboratories

- Agri-Food Materials Science Unit
- Agricultural Genomics Science Unit
- Food Science facilities
- Nutrition & Metabolism facilities
- Human Nutrition Research facilities
- Plant Growth facilities

## Off-campus Research Facilities

- Agri-Food Discovery Place
- Alberta Poultry Research Centre
- Crops & Land Resources Unit
- Dairy Research & Technology Centre
- Land W McElroy Metabolism & Environment Research Unit
- Swine Research & Technology Centre
- Enclosed Composting Facility
- Feedmill
- Ministik Field Station
- University of Alberta Kinsella Research Ranch
- St. Albert Research Station
- Mattheis Research Station

## Technology Transfer

- 11 Reports of Inventions
- 10 Number of new inventions for which we applied for patent protection
- 4 Number of technologies from previous years in which we invested in this FY
- 1 Licenses
- 21 Material Transfer Agreements
- 3 Miscellaneous (memorandum of understanding, termination, research collaboration)

# professors

Dr. Judd Aiken  
Prion Disease

Divakar Ambrose  
Dairy Reproduction & Management

Dr. Ronald Ball  
Swine and Human Nutrition

Dr. Daniel Barreda  
Immunology

Dr. Rhonda Bell  
Human Nutrition

Dr. David Bressler  
Fermentation & Bio/Food Engineering

Dr. Heather Bruce  
Carcass & Meat Science

Dr. Linda Casey  
Pediatric Nutrition

Dr. Jonathan Curtis  
Lipids, Analytical Chemistry

Dr. Walter Dixon  
Molecular Biology

Dr. Lloyd Dosdall  
Agricultural Entomology

Dr. Carolyn Fitzsimmons  
Beef Genomics

Dr. George Foxcroft  
Swine Reproductive Physiology

Dr. Michael Gänzle  
Microbiology & Probiotics

Dr. René Jacobs  
Human Nutrition

Dr. Jane King  
Physiology of Forage Crops

Dr. Nat Kav  
Biochemistry & Biotechnology

Dr. Burim Ametaj  
Ruminant Nutritional Immunology

Dr. Marleny Aranda Saldana  
Food/Bio Engineering Processing

Dr. Lorne Babiuk  
Virology & Infectious Diseases

Dr. Miodrag (Mike) Belosevic  
Comparative Immunology and Infectious Diseases

Dr. Mirko Betti  
Muscle Food Chemistry & Processing

Dr. Edward Bork  
Rangeland Ecology & Management

Dr. Cathy Chan  
Human Nutrition

Dr. Lingyun Chen  
Plant Protein Chemistry and Technology

Dr. Tom Clandinin  
Human Nutrition

Dr. Michael Dyck  
Reproductive Physiology/Biotechnology

Dr. Anna Farmer  
Community Nutrition

Dr. Catherine Field  
Nutrition and Metabolism

Laki Goonewardene  
Beef Science

Dr. Leluo Guan  
Functional Genomics & Microbiology

Dr. Linda Hall  
Environ. Biosafety & Integrated Weed Management

Dr. Johh Kennelly  
Dairy Cattle Nutrition & Metabolism

Dr. Douglas Korver  
Poultry Nutrition

# professors

Dr. Diana Mager  
Clinical Nutrition

Dr. Vera Mazurak  
Nutrition & Metabolism

Dr. Linda McCargar  
Clinical Nutrition

Dr. M. Anne Naeth  
Applied Ecology, Land Reclamation & Restoration Ecology

Dr. Masahito Oba  
Dairy Nutrition and Physiology

Dr. Erasmus Okine  
Ruminant Nutrition and Metabolism

Dr. Habibur Rahman  
Canola Breeding & Research

Dr. Robert Renema  
Value-Added Poultry Science

Dr. Frank Robinson  
Poultry Management/Physiology

Dr. Stephen Strelkov  
Plant Pathology

Dr. Feral Temelli  
Food Process Engineering

Dr. Thavaratnam Vasanthan  
Grain Science & Technology

Dr. Christian Willenborg  
Field Crop Agronomy and Weed Science

Dr. Noreen Willows  
Community Nutrition

Dr. Wendy Wismer  
Sensory & Consumer Science

Dr. Ruurd Zijlstra  
Ingredient Evaluation & Carbohydrate Nutrition

Dr. Martin Zuidhof  
Poultry Science, Bioeconomic Modeling

Dr. Jerry Leonard  
Bioresource Engineering

Dr. Changxi Li  
Bovine Genomics

Dr. Tom McFadden  
Dairy Science

Dr. Lynn McMullen  
Food Microbiology

Dr. Stephen Moore  
Bovine Genomics

Dr. Jocelyn Ozga  
Plant Physiology & Horticultural Science

Dr. Lech Ozimek  
Dairy Processing Technology & Food Product Development

Dr. Spencer Proctor  
Metabolic and Cardiovascular Diseases

Dr. Andreas Schieber  
Functional Foods and Nutraceuticals

Dr. Dean Spaner  
Plant Breeding/Organic Agriculture

Dr. Paul Stothard  
Bioinformatics

Dr. Donna Vine  
Human Nutrition

Dr. Zhiquan Wang  
Beef Quantitative/Statistical Genetics

Dr. Randall Weselake  
Agricultural Lipid Biotechnology

Dr. David Wright  
Human Nutrition

Dr. Jianping Wu  
Food Protein Chemistry

Dr. Rong-Cai Yang  
Statistical Genomics and Quantitative Genetics





**UNIVERSITY OF ALBERTA**  
DEPARTMENT OF AGRICULTURAL,  
FOOD & NUTRITIONAL SCIENCE

Faculty of Agricultural, Life & Environmental Sciences  
Room 410, Agriculture Forestry Centre  
University of Alberta  
Edmonton, Alberta T6G 2P5  
Tel: 780.492.3239  
Fax: 780.492.4265  
E-mail: [afns-chair@ualberta.ca](mailto:afns-chair@ualberta.ca)

[www.ales.ualberta.ca/afns](http://www.ales.ualberta.ca/afns)