


Our
knowledge
is your
Advantage






Mission Statement:

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

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

to improve the health & quality of life.



For more information please visit our website @ www.afns.ualberta.ca

We're Growing – In Enrolment, Research Capacity and Impact

The year 2005, my first as Chair, continued to be a year of excellence for our internationally recognized Department. AFNS succeeded in its mission of providing the human and technological tools to meet demands for sustainable agricultural production, value-added processing, food safety and human health, in order to improve the health and quality of life.



Erasmus Okine, Chair

We succeeded by first sharpening strengths in strategic areas, attracting top talent and achieving student growth. Second, we continued to build sustainable bridges within the Department, with other university

departments, and with provincial and federal stakeholders. Third, we engaged relevant industries as meaningful partners in our research and development.

Our graduate programs grew in enrolment and impact. I am proud that 92% of our graduates found appropriate employment within six months, and 100% within a year. I'm also pleased that our two undergraduate degree programs, Agriculture, and Nutrition and Food Science, received new ACCESS funding support from the Alberta government.

The future continues to look bright in the research, teaching and extension areas, with a program in Animal Health Science under consideration. Our success has resulted in space challenges, but these key priorities will be resolved, in part by the opening this spring of our new \$25 million building, Agri-Food Discovery Place at the Edmonton Research Station. I look forward to continued success in meeting the needs of our partners, students and the wider community.

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Building the Foundation for Sustainable Prosperity

The last year was pivotal for AFNS. The Department continued to consolidate its position as the leading university department in North America in terms of its multidisciplinary, integrative approach to education, research and service. In these pages,



John Kennelly, Dean

you'll read how our researchers, graduate students and undergraduates are having an impact in many areas. I'm proud of their achievements, and of the Department's role in nurturing such talent.

What's even more important is that we continue to look ahead. As you may know, the Faculty has identified four Strategic Research Initiatives as key to meeting regional, national and global challenges. They are: Healthy Human Environments; Growing the Bio-Products Industry; Enhancing Global Food Systems; and Sustainable Land, Forest and Water Management. These initiatives are designed to explore technical and policy solutions to enhancing and sustaining our human environment, developing innovative sources of renewable feedstock, improving worldwide health and food security, and adding value to our agricultural resources. With educational programs to support these research initiatives, we're helping provide the foundation for the future prosperity and quality of life and health of Albertans.

John Kennelly – Dean
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BREAKING NEWS.....

On June 23, 2006 the Grand Opening of Agri-Food Discovery Place at the Edmonton Research Station was celebrated by over 600 staff and invited guests. This world class \$25 million dollar facility, with significant investment from the federal and provincial governments, Industry and the University, will be used for leading-edge research in meat safety and processing, crop utilization, and advanced materials and bioprocessing. The food science and technology team within AFNS will be jointly occupying the building with the Bio-Industrial Technology Division of Alberta Agriculture, Food and Rural Development.



Iwona Pawlina

Poultry Centre Gets Cracking

Alberta's poultry industry will soon have a lot to crow about, thanks to new initiatives at the Alberta Poultry Research Centre.

The Poultry Centre is a collaborative research and teaching centre funded by the U of A, Alberta Agriculture, Food and Rural Development and the poultry industry.

"The Centre set very ambitious targets to be achieved by the year 2010," says Dr. Iwona Pawlina, Executive Director. Those targets include developing five new value-added carcass products and five new value-added egg technology products, and tripling the number of graduate students. Research funds will double in three years to \$3 million annually and further increase to \$5 million annually by 2010.

The expansion is supported by \$5 million committed in 2005 over five years to the value-added area from the Alberta Livestock Industry Development Fund Ltd. and the Alberta Agriculture Research Institute. Such value-added opportunities as developing new products from dark meat and utilizing egg technology to create new food and non-food products will be explored. "We can use our imagination and innovate," says Pawlina.

The internationally recognized Centre already has a strong foundation to build on, she says. Its unique collaborative nature nurtures not only research, but also training of scientists and highly qualified personnel.

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Beefing Up Canada's Meat Industries

Dr. Stephen Moore, Professor of Bovine Genomics at AFNS, has been named Scientific Director of the Alberta Prion Research Institute. The \$35-million initiative was formed in 2005 by the Alberta Government to investigate prions, proteins linked to bovine spongiform encephalopathy (BSE).

"We can really make a difference in a number of ways," says Dr. Moore. "The research programs are diverse. We do everything from protein chemistry to social sciences, so we can increase understanding not only of the disease, but also of its impact."

AFNS also received \$4.2 million in funding from the Institute for Food and Agricultural Sciences, Alberta (IFASA) for its prestigious Bovine Genomics program. In 2005, the program reported the first location for genes affecting efficiency in beef cattle, only one of several major accomplishments last year.

AFNS is also adding muscle to a province-wide IFASA initiative to create a Value-Added Meat Network. This program, which is being led by Dr. Mick Price, an AFNS Emeritus Professor, has recently received \$4 million in new funding. The Network will make the expertise of all meat science and technology resources in Alberta available to the meat industry. It is seen as an important step in achieving Alberta's goal of increasing the value-added portion of its meat industries from under \$1 billion annually in 2003 to over \$3 billion annually by 2010.

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Stephen Moore

Lipid Program World's Largest

You could sum up Dr. Suresh Narine's research focus in four words: Make fats work harder!

He heads the \$12-million Alberta Lipid Utilization Program, launched at the U of A in 2005 to revolutionize the use of the world's oilseed crops and oils. The program is funded by Bunge Oils, the Alberta Canola Producers Commission and a variety of federal and provincial funding agencies.

The program is home to the world's largest team of lipid utilization scientists, who are working with lipids (fats) from plants and animals. The goal is to find new uses ranging from low trans-fat foods to plastics, cosmetics and bio-lubricants.

"This initiative is tremendously exciting," says Narine, Associate Professor, Rheology, Materials Science, Food Physics. "It allows a critical mass of scientists to focus on solving problems related to lipid utilization within state of the art laboratory and pilot facilities."

Narine received the 2005 Growing Alberta Leadership Award for Innovation in recognition of his leading-edge research using canola to create biodegradable plastics. He also received the 2005 AFNS Salute Award for leadership in undergraduate teaching, and was recently honored by one of his alma maters, Trent University, with the "Distinguished Alumni Award".

Amazingly, he finds time to provide Third World relief. Narine, who lived in Guyana until 19, recently assembled an expert team to make recommendations on developing Guyana's dairy and beef industry. He also assists Guyana as the Director of the National Institute of Applied Science and Technology.

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Suresh Narine



Feral Temelli (L) with Thava Vasanthan

AFNS Professors Win Big

Two AFNS researchers captured one of Alberta's most prestigious awards for innovation in agricultural science in 2005 – and are also on their way to achieving big wins for Alberta grain producers.

Drs. Feral Temelli and Thava Vasanthan received the AVAC/ DOW Agrosiences/ASTech Innovation in Agricultural Science prize for developing innovative technology that could save millions in health care costs and open new markets for Alberta's grain growers. The technology concentrates cholesterol-lowering fiber, called beta-glucan, from oats and barley.

"Up to now, there hasn't been a cost-effective method available to extract beta-glucan from oats or barley without destroying the health benefits," explains Temelli. "We were able to overcome this challenge by developing a fractionation process that removes the other compounds."

The team developed a U of A spin-off company, Cevena Bioproducts, to market the resulting concentrate, trademarked as Viscofiber®. The venture represents a tremendous new opportunity for the province's grain producers. "Food manufacturers will be able to incorporate the technology's superior beta-glucan ingredients into their products at a reasonable cost," says Dr. Vasanthan. "By doing so, entirely new products can be created for the fast-growing nutritional products market. In the past, the costs associated with high-quality purified beta-glucan were prohibitively high."

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David Bressler

It's Made From What?

Fire-fighting compounds might not immediately spring to mind when you think about value-added agricultural products.

Yet that's exactly the type of surprise you're likely to find in the labs of such researchers as Dr. Bressler, Assistant Professor, Bio/Food Engineering. He's working to develop an internationally recognized laboratory for bio-refining of agricultural byproducts.

Bressler, who is cross-appointed with the Bio-Industrial Technology Division (BTD) of Alberta Agriculture, Food and Rural Development, says bloodmeal has excellent potential to be converted into renewable, biodegradable byproducts such as fire-fighting compounds or industrial foaming agents. "We've extracted the protein components from the bloodmeal, got it re-suspended and purified, and we're just working on the different modifications now," he explains.

Dr. Bressler is also directing collaborative work with the National Centre for Upgrading Technology, working to transform oil and tallow into an environmentally friendly replacement for diesel. Another focus is on using grain products left over from the beer-brewing process to create a plant-based sweetener, xylitol.

The strong level of collaboration in the field is a plus, says Bressler. Some projects are integrated with BTD and other researchers in AFNS (Dr. Michael Gaenzle, Food Microbiology and Probiotics) and the U of A's Department of Chemical Engineering. Other partners include the Alberta Research Council. "It's a positive experience," says Bressler.

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More Oil, More Profits

The more oil, the better, right?

That's true for oil in the ground – and also for the seed oil that can be extracted from Western Canadian crops such as canola.

Since arriving at AFNS in September 2004, plant scientist Dr. Randall Weselake, Professor of Agricultural Biotechnology, has focused his research on studies of oil formation in canola and, more recently, in flaxseed.

In canola, Weselake and his team are pursuing strategies to increase seed oil content. "In one of these strategies, we have increased the abundance of an enzyme that drives the final step in seed oil formation such that the seed oil content is enhanced," explains Weselake. "Studies performed under greenhouse and field conditions have led to encouraging results."

In future work, Weselake plans to explore the molecular relationship between the developing seed coat and the developing embryo where oil is formed. "The seed coat could influence oil formation in the embryo," says Weselake, who holds the Canada Research Chair in Agricultural Lipid Biotechnology.

The research could add substantial benefits to the canola industry. Canola oil is now the most valuable part of canola seed. The meal from canola seed is also used in animal feed.

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Randall Weselake

CFI Funding Impact “Huge”

Leading-edge research requires leading-edge infrastructure. That’s why the impact of infrastructure funding from the Canadian Foundation for Innovation (CFI) is “huge”, says AFNS Research Coordinator Dr. Richard Smith. “It allows our new academics to kick start their research program and compete at a world-class level.”

The Government of Canada created the CFI in 1997 to enable institutions to set their own research priorities. CFI normally funds up to 40% of a project’s infrastructure costs. Last year, eight new AFNS academics received a total of \$1.4 million in CFI funding.

Dr. David Bressler, Assistant Professor, Bio/Food Engineering, received \$146,648 to establish a completely renovated biorefining laboratory.

Dr. Lorraine Doepel, Assistant Professor, Dairy Nutrition/Metabolism, and **Dr. Masahito Oba**, Associate Professor, Dairy Nutrition/Physiology, received \$255,358 to purchase critical equipment for research aimed at improving the health of dairy cattle.

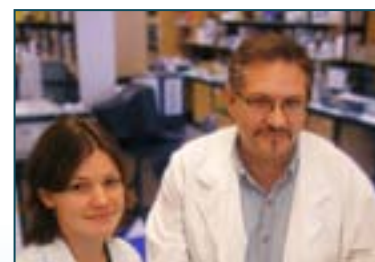
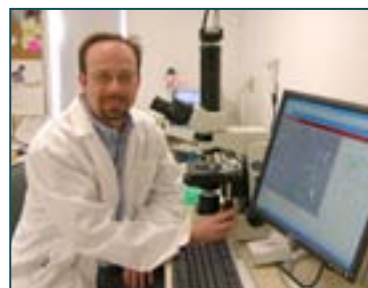
Dr. Michael Dyck, Assistant Professor, Swine Reproductive Physiology, received \$135,466 to help establish a state-of-the-art reproductive technology facility at the U of A, Swine Research & Technology Centre.

Dr. Michael Gaënzle, Assistant Professor, Food Microbiology and Probiotics, received \$140,886 for a chromatography unit and instrumentation that will support research into increased meat safety and value-added agricultural byproducts.

Dr. Stephen Strelkov, Assistant Professor, Plant Pathology, and **Dr. Habibur Rahman**, Associate Professor, Canola Breeding and Biotechnology, received \$294,465 to fund equipment for research into improved canola with better disease resistance, and related investigations.

Dr. Randall Weselake, Professor, Agricultural Biotechnology, received \$184,978 for critical infrastructure to achieve new insights into the oil formation process in canola and flax to benefit producers and industry.

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From Top to Bottom:

- David Bressler
- Lorraine Doepel
- Masahito Oba
- Michael Dyck
- Michael Gaënzle
- Stephen Strelkov
- Habibur Rahman
- Randall Weselake (R) with Olga Yurchenko



Linda McCargar

Steps to Healthy Living

As a tireless supporter of healthy living strategies, Dr. Linda McCargar definitely walks her talk.

One example of her community outreach is “One Step, One Bite at a Time!,” a pilot program, in collaboration with Dr. Ron Plotnikoff, aimed at promoting healthy eating and active living among Edmonton elementary school children. “We had thought it would be a walking promotion, but kids run!” says McCargar, a Professor of Clinical Nutrition at AFNS. “The students all wore pedometers, keeping track of their steps per day, and kept a diary of fruit and vegetable servings each day.”

She involved undergraduate and graduate students as facilitators in the program. They went to four schools at lunch hours three times a week for four months, promoting healthy eating and active living with the students.

Feedback has been excellent. “To date the majority of our students are living their learning,” two principals reported. “They are eating healthier more often; they are actively involved in physical activities daily.”

In 2005, McCargar received a YWCA Women of Distinction Award in recognition of her commitment to healthy lifestyles. “Through her teaching, research and professional and community service, she is a strong advocate for the promotion of healthy eating and active living,” the award program stated.



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Mexican Experience Crystallizes Career Goals

Following her research on breastfeeding practices in Mexico, Eva Monterrosa now plans a career in international development.

“This was such a great experience that I want to pursue it with a PhD and work in developing nations in areas related to infant nutrition,” says Eva, a graduate student in Human Nutrition.

Accompanied by her supervisor Dr. Noreen Willows, Assistant Professor in Community Nutrition, on her first visit, Eva spent eight months on a collaborative study with the University of Guadalajara of 154 mother-infant pairs. Only 20% of Mexican infants are exclusively breastfed during their first six months. The research found that although exclusive breastfeeding is preferable, high-intensity, non-exclusive breastfeeding also provides significant health benefits for the infant.

Eva, who based her master’s thesis on the results, says “everyone should have the opportunity to go to a different culture and experience how things are done differently.” Dr. Willows also found the experience invaluable. “It allowed me a different world view on women’s health issues. I’m happy that the university, through University of Alberta International recognizes the importance of this kind of work.”

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Eva Monterrosa

Waging War on Range Weeds

Canada thistle is the most widespread weed on Western Canadian pastures, but until recently, little was known about its impact on livestock producers, nor the most effective strategies for control.

While studying the weed between 1999 and 2004 using resources from a multitude of sources, Dr. Edward Bork, Rangeland Ecology and Management specialist, developed valuable new knowledge by bringing producer and industry partners, graduate students and agricultural extension agents together.

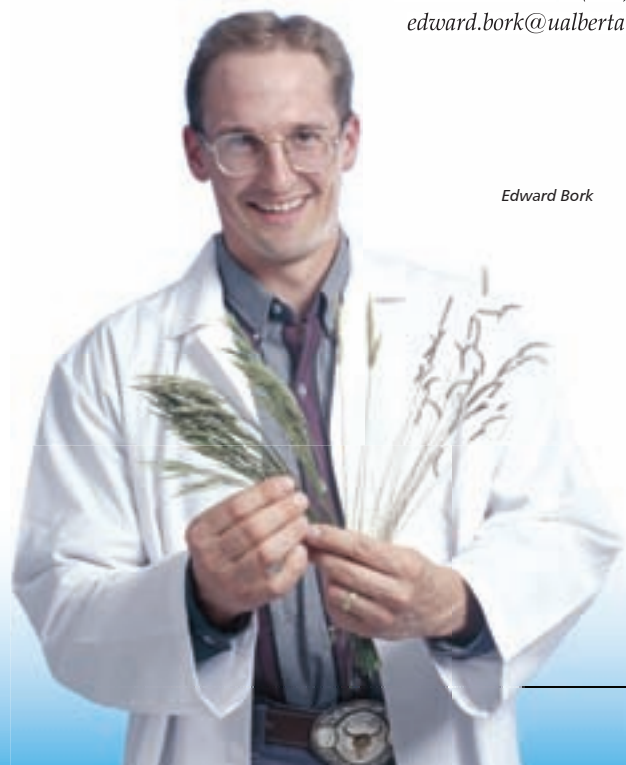
“We had tremendous interest and cooperation from ranchers,” says Bork, noting that 18 different producers, “gave up land in exchange for information directly relevant to their operation”. Counties and agriculture extension offices also loaned staff to assist with the extensive sampling effort. With field sites serving as ‘living labs’, producers and local staff gained valuable insight into weed management.

The outcome of this research was a clear set of beneficial management practices for weed control, including pro-active strategies to minimize weed outbreaks altogether. “Producers understand it is unlikely we are going to eradicate this weed”, Bork says. “The real question industry wanted addressed is ‘How can integrated management practices keep this damaging plant at a level where it’s tolerable, minimizing ecological and economic impacts on Alberta cattle producers?’”

Bork concludes, “This research program is a model example of how resources can be pooled and optimized to ensure producers ultimately have a better understanding of what tools are available to manage this problem weed more effectively”.

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Edward Bork



Field Trips Yields Benefits

The term “field trip” could not be more apt for the experiential learning experience provided last fall for 4th year AFNS students majoring in crop science.

Students toured southern and northern Alberta farms on two weekends, stopping to investigate fields of sugar beets, potatoes and many other crops as part of a group project. Each student team had a difficult problem to solve, such as how to make feed barley economically viable for producers.

“The feedback was very positive,” says Dr. Linda Hall AAFRD, Associate Professor in Environmental Biosafety. “Students got the growers’ perspective on complex issues.”

Hall co-shared the course with former AFHE Dean, the late Dr. Ian Morrison. “He really showed his absolute fascination with the cropping system and sustainability,” Hall recalls. “He connected the dots for the students, from soil fertility to crop marketing.”

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Ian Morrison

The University and agriculture community mourned the loss of Dr. Ian Morrison in 2006. Ian served as Dean of Agriculture, Forestry, and Home Economics from 1996-2004. He was a professor of agronomy and cropping systems, specializing in weed science. A skilled photographer, he was adept at capturing the beauty of plant life and rural scenes. Passionate about ensuring the future viability of Alberta’s renewable resources, Ian planned to focus on the area of environmentally sustainable agriculture after his Deanship. Unfortunately Ian’s life was tragically cut short as a result of an accident that occurred January 8, 2006 while he was horseback riding.

In remembrance of Dr. Morrison’s dedication to and support of undergraduate students the Ian Morrison Undergraduate Leadership Award has been established.

<http://www.afhe.ualberta.ca/morrison>

Ian Morrison





Eleanor Tyerman

A Sweet of an Internship

Can you imagine a sweeter student internship than the one Eleanor Tyerman cooked up for herself?

Eleanor, a 4th year BSc student in Nutrition and Food Science, began an eight-month internship in France in January 2006 with Ferrero, one of the world's most esteemed chocolate makers.

Her internship involved three studies. In the first two, she was based in Rouen where she worked on sensory analysis of the company's chocolate hazelnut spread, Nutella. A second study focused on what the company could do to help address childhood obesity, a growing problem in France. The third study took her to Monaco to study product development.

The major benefit of the internship is the valuable experience gained, Eleanor says. After finishing her degree, she hopes to work in product development or as a government inspector. "I think that by having done this internship, I may have an easier time finding a job and will be able to move up faster. It's hard for veteran workers to take a fresh graduate seriously if they have no life experience to go along with their degree."

For undergraduate program information, please contact Student Services Office at (780) 492-4933 or 1-800-804-6417 (Western Canada) or questions@afhe.ualberta.ca

Cultivating the Next Generation

As a 4th year BSc student in Range and Pasture Management, Tanner Pollack is cultivating the leadership and business skills he'll need as a future Alberta farmer.

His goal? "Eventually I would like to go back to the family farm to grow it and keep it successful," says Tanner, who grew up on a mixed farm near High Prairie.

As president of the Agriculture Club for the Faculty of Agriculture, Forestry, and Home Economics, he oversaw one of the most successful Bar None cabarets in the 59-year history of this student event. It raised over \$30,000 for charity and an endowment fund.

Tanner is also president of the Alberta Young Farmers' Forum, which promotes leadership and networking among Alberta's future farmers. As president, he spent a week in Ottawa learning about such topics as business management, media relations and succession planning. He also hosted a networking forum in Alberta that focused on successful farm management, communication styles and leadership development.

Tanner is harvesting many benefits from these leadership experiences. "I'm doing a lot of things I didn't think I was capable of. I definitely had to shape up my organizational skills. I've also learned about time management and conflict management."

For undergraduate program information, please contact Student Services Office at (780) 492-4933 or 1-800-804-6417 (Western Canada) or questions@afhe.ualberta.ca



Tanner Pollack



Donald Nkrumah

Cutting Edge Research: A Dream Come True

As an Agricultural Science undergraduate student in Ghana, Donald Nkrumah frequently heard his instructors talk about the U of A. “I always wanted to come here,” he says.

AFNS was his first choice for doctoral work, because “basically the facilities that we have in our genomics lab don’t exist in Animal Science anywhere else in the world.”

Donald obtained his Master’s degree from the University of Bristol, England, and achieved his dream to pursue his PhD at the U of A under Drs. Moore and Okine.

“We were able to accomplish a lot,” he says. “We mapped genes in cattle associated with economically important traits such as feed efficiency. We also identified significant mutations in beef cattle in the gene associated with obesity.” Other aspects of his research have potential applications in reducing greenhouse gas emissions from cattle.

“When I applied to AFNS I expected to do something good,” Donald says. “But I didn’t expect to carry out cutting-edge research using state-of-the-art equipment.” Donald won several awards in the U of A including a Dissertation Fellowship and the Andrew Stewart Memorial Prize.

Donald started a full-time position in April with Merial Canada Inc., where he will be working as a Biostatistician.

For graduate program information, please contact Student Support at (780) 492-5131 or afns.grad@ualberta.ca

Serving Up Health!

Thanks to her nutritional training at AFNS, Pamela Drinnan helped a whole community get moving.

Now a registered dietitian and nutritionist, Pamela received her BSc in Nutrition and Food Science. Soon afterward, she became the MOVE (Making Our Vermilion Energized) Coordinator in Vermilion. She taught school children “real-life nutrition lessons,” built partnerships, and helped the community become a winner in the 2005 Overall Community Choose Well Challenge. This exceptional program also earned her the 2005 national and regional Speaking of Food and Healthy Living Award sponsored by Dietitians of Canada and Kraft Canada.

Last year, Pamela joined Alberta Milk as a Nutrition Educator. In partnership with the Canadian Cancer Society, Dietitians of Canada and Breakfast for Learning Alberta, she developed and implemented an annual Healthy Schools Initiative. She’s also involved in a partnership with the U of A to deliver such classes as “Controversies in Nutrition.”

Pamela credits AFNS with opening the doors to the career path of her dreams. “I was able to experience a first-class education in which I was exposed to all aspects of the field of Dietetics,” she says. She’s particularly grateful for the experience she gained as a Peer Nutrition Educator with the University Health Centre.

Pamela notes that her diverse experiences at AFNS even included dressing up as a carrot at the Agriculture, Forestry, and Home Economics, Alumni Brunch, and posing with the late Dean Ian Morrison!

For graduate program information, please contact Student Support at (780) 492-5131 or afns.grad@ualberta.ca



Pamela Drinnan (L) with Ian Morrison



A Taste for Waste

Dr. Grant Clark is bullish on agricultural waste. As the newly appointed Assistant Professor of Biosystems Engineering, his research area is agri-food waste management. “It’s a great opportunity,” says Clark. “What we’re talking about is changing the perception of what has traditionally been viewed as a waste stream, like manure or straw, and looking at them more as resources that can be utilized to make a saleable product.”

Raised on a mixed farm near Stettler, Clark received his PhD at McGill University. For the last four years he worked as a research associate with Drs. Jerry Leonard and John Feddes. That experience provided a strong foundation for his interests in optimizing the use of nutrients and energy in agricultural production systems.

Clark is also enthusiastic about improving numerical models to estimate greenhouse gas emissions from agricultural ecosystems. Canada must develop national inventories of these



emissions, including those from agriculture, as part of ratification of the Kyoto Protocol.

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Make Mine Dark

White meat or dark? When it comes to poultry, white meat is more popular with consumers, resulting in lower prices for leg meat.

Dr. Mirko Betti, who joins AFNS in 2006 as Assistant Professor, Poultry Meat Science, hopes to improve that scenario – for both producers and consumers. Betti, formerly a research scientist with the University of Bologna and Arena Food Company in Italy, will focus his research on improving the quality and processing of dark poultry meat.

Betti is interested, for example, in exploring how genetic selection affects quality. While we know that stress plays a part, “we need to deeply investigate and measure the importance of genetic selection on poultry meat quality,” he says. His work could also result in new products from dark meat.



Dr. Betti came to the U of A because of the strong poultry science group here. His position is funded by the Alberta Poultry Research Centre.

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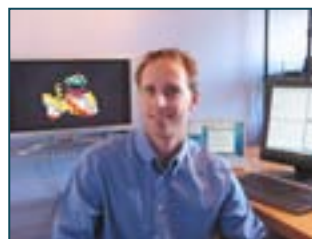
Beef with Bioinformatics

“Challenging” and “exciting” are the words that Dr. Paul Stothard uses to describe the prospect of collaborating with a diverse range of scientists to develop a world-class bioinformatics infrastructure for the livestock industries.

As the newly appointed Assistant Professor in Bioinformatics, he’ll pursue this area of growing research interest with other members of the acclaimed AFNS Bovine Genomics program.

“Bioinformatics is the use of computers to store and interpret biological information,” Stothard explains. “With the completion of the genomic sequences of livestock species, agricultural science will gain access to an extraordinary amount of genetics knowledge.”

His primary goal will be to create the software and databases needed to integrate this raw sequence data with existing and



emerging knowledge. He hopes the research will lead to identifying the underlying genes related to desirable traits in livestock and plants.

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More Focus on Malnutrition

When people with intestinal and liver disorders are hospitalized, malnutrition can be a major concern. That’s an area where Dr. Diana Mager, newly appointed Assistant Professor in Clinical Nutrition, hopes to make a difference. Her research will focus on the impact of chronic liver and intestinal diseases on nutrient metabolism in children and adults.

Understanding the underlying disease mechanisms is important, she says, because “nutrition support interventions play a critical role in disease management”.

Mager’s position is jointly supported by AFNS and Capital Health. “I chose AFNS and Capital Health to work at because both institutions have a strong focus on supporting clinical nutrition research,” she says.



*Diana Mager (L) with Diogenes Baena,
The Hospital for Sick Children*

Since 1995, Mager had been employed at The Hospital for Sick Children in Toronto, where she served as Clinical Educator in the Department of Clinical Dietetics.

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Exploring Gene Architecture

Predicting which individual cattle in a herd are most likely to produce economically valuable offspring has never been easy.

Dr. Zhiquan Wang, the newly appointed Associate Professor, Quantitative/Statistical Genetics, aims to help. His research focuses on achieving a greater understanding of the “genetic architecture” underlying economically important traits in livestock.

“The results from such research can then be transferred to the beef industry in Alberta,” says Dr. Wang, who notes that AFNS has “a very strong Bovine Genomics program.”

Dr. Wang looks forward to incorporating recent advances in molecular information to the existing genetic improvement program to further improve the accuracy of selection. Rapid development of techniques and knowledge in molecular genetics and related fields has opened “a new era” for research in this area, he says.

Originally from Harbin, China, Dr. Wang was previously employed as a research associate with Dr. Steve Moore of AFNS. He has worked as a modeling analyst with Alberta Agriculture, Food and Rural Development and as a project manager with ABS Global Inc. in the United States.



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Finding “Fat Solutions”

Dr. David Wright, who joins AFNS in 2006 as Assistant Professor in Human Nutrition, says “the U of A is a great place to start my career.”

Formerly a postdoctoral fellow at Washington University in St. Louis, Missouri, Wright’s training is in skeletal muscle metabolism, and how exercise and diet alter the ability of muscle to use blood sugar. At the U of A, he’ll pursue similar studies on fat tissue.

His research could lead to better understanding and prevention of obesity. One focus, for example, will be on a protein called AMPK, which is “activated” during exercise. “By activating this protein you can increase the ability of a cell to ‘burn’ fat while at the same time decreasing the ability of the cell to store fat,” he explains. “If we can figure out how this works, then we can design approaches to mimic this exercise effect in people who are unable to exercise.”

Wright received five year Scholarship Award and \$240,000 in funding from the Alberta Heritage Foundation for Medical Research to support his investigations.



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Illuminating Linkages to Chronic Disease

You could think of the intestine as a mystery, and Dr. Donna Vine as a sleuth.

Appointed an Assistant Professor in Human Nutrition in January, she’s exploring the mechanisms the intestine uses to metabolize and transport dietary lipids. Her particular interest is furthering the understanding of these processes and their role in the development of chronic health problems such as cardiovascular disease, polycystic ovarian syndrome and diabetes.

She arrived at AFNS two years ago from Western Australia, where she specialized in functional foods and chronic disease at Curtin University of Technology in Perth. Donna’s expertise in pharmaceuticals is being applied to a second aspect of her

research program, which focuses on how diet, pharmaceuticals and nutraceuticals influence intestinal transport processes and metabolism.

Shedding light on these areas will help to achieve a better understanding of how these processes affect the rest of the body, in particular cardiovascular health.

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Summary of Funds

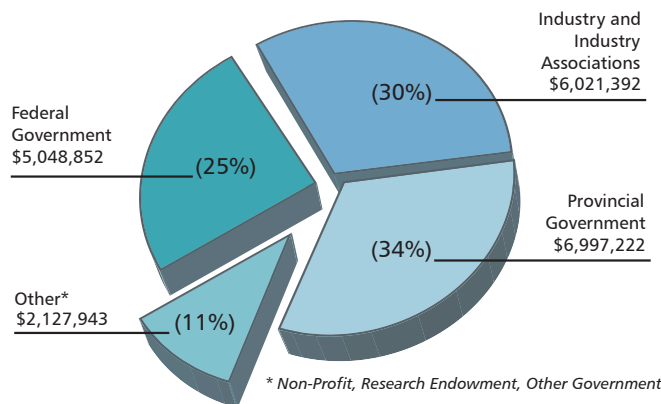
2005/06
Operating Budget \$6,879,798

Distribution of Operating Budget

68% Academic & Teaching Support
 11% Administration & Computing Support
 11% Central Laboratories
 10% Research Stations

2005/06
Research Funding \$20,195,409

Source of Research Funding



Academic Staff

60 Professors
 39 Adjunct Professors
 15 Postdoctoral Fellows
 20 Research Associates

Undergraduates enrolled in degree programs:

298 BSc Agriculture (Includes Pre-Veterinary Medicine)
 26 BSc Agricultural/Food Business Management
 486 BSc Nutrition & Food Sciences

810 Total

Graduate Student Enrolment

85 Masters
 73 Doctoral
 3 Other

161 Total

Central Laboratories include:

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

Research Stations include:

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



Barry Irving – Outstanding Undergraduate Instructor, presented by the Range Science Education Council of North America

faculty

Dr. Burin Ametaj
 Ruminant Nutritional Immunology
Dr. Ronald Ball
 Swine & Human Nutrition
Dr. Mirko Betti
 Poultry Meat Science
Dr. Rhonda Bell
 Human Nutrition
Dr. Peter Blenis
 Forest & Plant Pathology
Dr. Edward Bork
 Range Management
Dr. David Bressler
 Bio/Food Engineering
Dr. Tom Clandinin
 Human Nutrition
Dr. Grant Clark
 Agr/Food Waste Management
Dr. Walter Dixon
 Protein Biochemistry & Molecular Biology
Dr. Lorraine Doepel
 Dairy Nutrition & Metabolism
Dr. Lloyd Desjardis
 AAERD Associate Professor
 Agricultural Entomology
Dr. Michael Dyck
 Swine Reproductive Physiology
Dr. Gaylene Faeenko
 Poultry Embryology & Chick Quality
Dr. John Feddes
 Animal Housing
Dr. Catherine Field
 Nutrition & Metabolism
Dr. George Foccroft
 Swine Reproductive Physiology
Dr. Michael Ganzle
 Food Microbiology & Probiotics
Dr. Laki Goonewardene
 AAERD Adjunct Prof.
 Beef Biometrics
Dr. Linda Hall
 AAERD Associate Professor
 Environmental Biosafety
Dr. Robert Hudson
 Wildlife Productivity & Management
Dr. Paul Jalen
 Food Processing Eng. & Dairy Technology
Dr. Nat Kay
 Plant Biochemistry & Biotechnology
Dr. John Kennelly
 Dairy Cattle Nutrition & Metabolism
Dr. Jane King
 Forage Agronomy/Physiology
Dr. Douglas Korver
 Poultry Nutrition
Dr. Jerry Leonard
 Bio/Resource Engineering
Dr. Diana Mager
 Clinical Nutrition
Dr. Vera Mazurak
 Human Nutrition
Dr. Linda McCargar
 Clinical Nutrition
Dr. Lynn McMullen
 Food Microbiology
Dr. Stephen Moore
 Bovine Genomics
Dr. Arne Naeth
 Vegetation Conservation & Reclamation
Dr. Suresh Narine
 AVAC Professor
 Food Rheology
Dr. Masahito Oba
 Dairy Nutrition & Physiology
Dr. Erasmus Okine
 AAERD Associate Prof.
 Ruminant Nutrition & Metabolism
Dr. Jocelyn Oza
 Horticulture & Plant Physiology
Dr. Lech Ozimek
 Dairy Processing & Technology
Dr. Mick Price
 Growth & Meat Production
Dr. Spencer Proctor
 Human Nutrition
Dr. Habibur Rahman
 Canola Breeding & Biotechnology
Dr. Kim Raibe
 Community Nutrition
Dr. Frank Robinson
 Poultry Management & Physiology
Dr. Willem Sauer
 Swine Nutrition
Dr. Jeong Sim
 Poultry Technology
Dr. Dean Spaner
 Crop Breeding & Agronomy
Dr. Peter Sports
 Food Chemistry
Dr. Stephen Strelkov
 Plant Pathology
Dr. Paul Stothard
 Bioinformatics Bovine Genomics
Dr. Ferial Temelli
 Food Processing & Quality
Dr. Thavaratham Vasanthan
 Cereals, Fats & Oils
Dr. Donna Vine
 Human Nutrition
Dr. Randal Wiselake
 Agricultural Biotechnology
Dr. Zhiqian Wang
 Beef Quantitative/Statistical Genomics
Dr. Noreen Willows
 Community Nutrition
Dr. Wendy Wismer
 Sensory & Consumer Science
Dr. David Wright
 Human Nutrition
Dr. Rong-Cai Yang
 AAERD Professor
 Statistical Genomics
Dr. Ruud Zijlstra
 Feed Industry Research Chair



Our
knowledge
is your
Advantage



*Design by Brian Klein
Photographs courtesy of
Agricultural, Food and Nutritional Science, University of Alberta and
Alberta Agriculture, Food and Rural Development*

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