

Student Events

• Olds College Practicum – August 2018

Students will have the opportunity to see small scale slaughter and learn about meat processing through hands-on experience.

• Professional Development Workshops (MITACS) – November 2018

Students will have the opportunity to understand the importance of personal and formal leadership and the art of networking.

• Webinars - Throughout the year

Student will have exposure to current topics in meat science. We have also added seminars regarding leadership.

• Conferences

Students will have the opportunity to share their research progress through poster and oral presentations. They showcase their ability to communicate science effectively.



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Director's Message

Welcome to the third issue of the NSERC CREATE Meat Education and Training Network (MEaTnet) newsletter. It is with great pleasure that I am introducing this issue with about 95% of our graduated students going on to work in the meat and pet food industries. The hands-on professional experiences our students receive through Olds College and the required industry internship make them incredibly attractive as employees.



Discussions with our industry partners have indicated that personal leadership skills are among the most important competencies sought by potential employers. One of the objectives of the NSERC CREATE for Assuring Meat Safety and Quality (MEaTnet) is to train our graduates to, one day, be leaders in the meat industry. To do this, our MEaTnet graduates receive training in leadership skills through seminars provided by MITACs and the Government of Alberta, and through webinars broadcast by the University of Alberta's Peter Lougheed Leadership College. Already our graduates are working in quality assurance, production management, and technical support and are moving into middle management positions where their theoretical and practical experiences obtained in the MEaTnet program will be fully utilized. If you would like to become part of the MEaTnet either as a student or an industry partner that hosts interns, contact us at meatnet@ualberta.ca. Join us!

Heather Bruce, PhD, Professor, Carcass and Meat Science, Director of the NSERC CREATE for Assuring Meat Safety and Quality (MEaTnet)



MEaTnet By the Numbers

YEAR 5

Total students:

- 43 graduate students
- 8 undergraduate students

Completed internships: 33

Graduates: 18

Industry partners: 26

Published papers: 12

Conference posters and presentations: 29

Current Projects

PATIENCE

The effects of β -adrenergic agonists and hormonal growth promotants (HGPs) on intramuscular collagen cross-link structure and density

ALEICIA

The prevalence of *Salmonella* in cattle deep tissue lymph nodes and cattle feed

DANIELLE

Effect of water activity on *Escherichia coli* inactivation using high pressure carbon dioxide

WENXIN

Functionality of mechanically separated pork compared to mechanically separated poultry

Reciprocal Meat Conference

The 71st Reciprocal Meat Conference (RMC) happened this year in Kansas City, Missouri. The RMC is an annual conference that brings together experts from industry and academia. Topics presented this year included: industry updates, diet health, cultured sources of animal protein, food safety and live animal production.

This year the Canadian contingent was out in full force with representatives from the University of Alberta, University of Guelph and the University of Saskatchewan. It was a successful conference with two MEaTnet students bringing home prizes. Whisley Wei, from the University of Saskatchewan, took home 3rd place (out of 21) in the poster competition. His poster was titled "Effects of Faba Bean (*Vicia faba*) Ingredients on Textural and Sensory Properties of Low-fat Pork Bologna".

A unique feature of RMC is the Iron Chef Product Development Competition. Throughout this event, students are provided with the opportunity to work with experts in the industry, network and get hands on experience with different processing machinery. Students are placed in teams where they create products which are then assessed and scored by industry experts. This year Whisley Wei and Wenxin Xiang came in 1st and 2nd, respectively. Congratulations and well done!



Whisley Wei and Wenxin Xiang



Front row (standing right to left) – Lydia Wang, University of Guelph; Ji-Han Kim, University of Saskatchewan; Shiqi Huang, University of Guelph; Wenxin Xiang, University of Saskatchewan; Sandra Vasquez Mejia, University of Guelph.

Back row (standing right to left) – Whisley Wei, University of Saskatchewan; Heather Bruce, University of Alberta; Ben Bohrer, University of Guelph; Sebastian Chalupa-Krebzdak, University of Guelph; Shai Barbut, University of Guelph; Phyllis Shand, University of Saskatchewan.

In this newsletter, we profile three students, two who were at RMC and one who recently graduated. We spoke first with Wenxin Xiang, a Food Science major from the University of Saskatchewan, about her experience as a graduate student in the MEaTnet and RMC attendee, and how she has benefited.

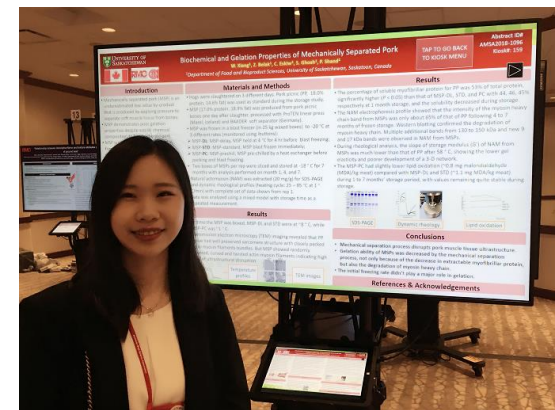
Graduate Student Profile: Wenxin Xiang

What is your research project?

Biochemical and gelation properties of mechanically separated meat

How did the Olds College Practicum help your research project?

At Olds College, I learned how to make different kinds of sausages, ham, jerky, burger patties, and steak. The hands-on experience of meat product processing helped me better understand the role of functional proteins from meat in product texture development and the interaction of protein with salt and other ingredients. This helped me better understand gelation properties of myofibrillar protein in both regular pork and mechanically separated pork which is the major subject of my research, and further broadened my knowledge about meat processing. I gained more insights about key steps in bologna processing at Olds College, which helped me have better control on my sample preparation and temperature management during the bologna processing and cooking steps in my research.



How was your experience at RMC?

I met a lot of professionals at RMC this year and listened to fantastic speeches. I loved the way meat scientists shared their ideas in their expertise, and this has helped me developed sound insight into meat science. I was very lucky to be in the team that won second place in the Iron Chef meat product development competition. It's a wonderful experience to share ideas and passion for meat product development with students from different universities and backgrounds. I felt excited sharing my results and ideas in my research with people who had the same interest and background.

Overall, how has MEaTnet enhanced your experience as a student?

MEaTnet is a very helpful organization. I had the chance to watch several webinars on different topics including meat grading, meat processing, and even leadership development. Those webinars have broadened my knowledge in meat science and helped me develop my interpersonal and communication skills in some way. Leadership training held at the U of A has helped me develop more soft skills, which will help me increase my competitiveness [as an employee] in the future. I look forward to doing my internship early next year because I believe the practical experience will prepare me for my career in the future.

Current Projects

DARSHIKA

Utilization of lentil phenolic compounds to control protein and lipid oxidation in mechanically separated chicken

DANIELLE B.

Bacteriocin efficacy against *Listeria monocytogenes* and resistance development

DEVON

Filamentation of cold adapted *Listeria monocytogenes* on ready-to-eat meats and validation of an adapted enumeration method

CHANDRE

Effects of the food matrix on high pressure resistance of *Escherichia coli*

PRINCE

Genetics of pork collagen and its relationship to pork quality

HENAN

Bioproduction of sulfated glycosaminoglycan oligosaccharides from animal by-products

Current Projects

ESTHER
Intermuscular connective tissue characteristics and expression of collagen genes associated with meat toughness in *Triceps brachii* muscle

HUAIGANG
Impact of genetics on meat quality from pork and beef

WHISLEY
Effects of autoclaving and short term germination on undesirable compounds in faba beans

DEVESH
Prediction of tenderness of beef using NIR spectroscopy

OLA
Effect of steroids and ractopamine in beef steers on consumer sensory perceptions of the eating quality of three bovine muscles

SALVADOR
The influence of breed and RFI status on meat quality and collagen properties of bovine *gluteus medius* muscle

We spoke with Whisley Wei, a meat science student from the University of Saskatchewan. He had a very successful Reciprocal Meat Conference (RMC), winning third place in the poster presentation and first place in the Iron Chef competition. He also recently finished his internship. Here, Whisley shares his experience as a graduate student with MEaTnet.

Graduate Student Profile: Whisley Wei

How did the Olds College practicum help your research project?

Brad [McLeod] is an expert in meat processing and has a cheerful personality. Unlike the theoretical laboratory work, the training program at Olds College offered me an opportunity to get hands-on experience developing formulations and operating equipment in a real industrial setting. The experience at Olds College also helped me to determine my career goals in the future. I would like to continue learning and applying my skills in Canadian meat industry.



How was your experience at RMC?

I joined the Iron Chef competition during RMC. It was an enjoyable event as I could work and meet with great people from other universities.

The research e-poster competition was another major event I attended during this conference, which was also a terrific event. Everyone was supportive to each other. The technical sessions were also something in which I was interested. I attended numerous interesting sessions and made connections to leading experts in meat industry. It was a truly satisfying experience during RMC. What I obtained will definitely help me in the future.

Overall, how has MEaTnet enhanced your experience as a student?

I just finished my internship, coordinated by MEaTnet, a few weeks ago. For myself, MEaTnet is not just a group of academics, but also knowledgeable experts and supportive people from various areas. Besides the program in Olds College, MEaTnet also provided the workshop for me to develop communication skills in the real work place last year. My experience with MEaTnet was fulfilled with friendly people and good memories. MEaTnet offered me the chance to connect with the correct people that actually have the same interest as me.

Lastly, we spoke with Kaixing Tang, who completed her MSc in Food Science and Nutrition, about her experience as student in the MEaTnet, and how it benefited her.

Student Profile: Kaixing Tang

How did your research project help you when you did your internship?

My internship was project based. I worked on different projects such as developing SOPs, pilot plant testing, and experimental model development. I gained critical thinking and problem-solving skills from doing my thesis project, and those are keys to this position. I was able to apply the knowledge and skills I gained from research to my internship.

How was your internship experience?

I did my internship at Champion Petfoods as a research assistant, and it is the most rewarding experience I had! My internship supervisor Dr. Mohamed Youssef gave me lots of support and showed me an industry which I had a minimum experience in. I gained insight into the pet food industry in general, into product development, and thinking from a strategic perspective.

What was the most important thing you learned in your internship?

I learned to think from a business perspective. For example, one of the projects I did was to optimize the pet treat process conditions to ensure product safety. When I was planning the experiment, I had to think how the change of process/condition would affect the cost of the final product as well as consumer acceptance.

What was the most important thing you learned in your research?

I learned to think critically. Different from most of the undergraduate projects, which were mainly team work based, thesis project required me to work independently and think critically. There were many times I need to repeat the experiment to figure out problems, and being able to think critically helped me to tackle most of the problems.

Any advice you would give to students looking for a career in the meat industry?

MEaTnet set up seminars, plant tours and the internship and these were great opportunities for students to network with industry experts. I think it is important to build connections with the industry by participating in those activities, and the knowledge you learn and the connection you build will help you to get a job after graduation.



Possible Supervisors

DIRECTOR, MEAT EDUCATION AND TRAINING NETWORK FOR ASSURING MEAT SAFETY AND QUALITY
Dr. Heather Bruce (UofA)

Other potential supervisors
Dr. Sven Anders (UofA)
Dr. Mirko Betti (UofA)
Dr. Ben Bohrer (Guelph)
Dr. Walter Dixon (UofA)
Dr. Michael Gänzle (UofA)
Dr. Ellen Goddard (UofA)
Dr. Ira Mandell (Guelph)
Dr. Lynn McMullen (UofA)
Dr. Linda Saucier (Laval)
Dr. Phyllis Shand (UofS)