Words from the Director: Jim Claus

Since our last newsletter it is amazing how much can happen in such a short time. The biggest news is Dr. Greaser, our “Titan of Titin” retired this June. Please join us in congratulating him on an extraordinary career!

Seth Schulz moved onto a new job with CRI/Ag Source (central region, WI) and will certainly be missed. We are delighted to announce, Jared Hammer was hired into the vacated associate outreach specialist position. Jared is an alum of UW and worked at Viskase after he graduated. Robby Weyker successfully defended his thesis and now will be ramping up all sorts of other activities in Bucky’s Butchery. We also had some interesting events including a “Day at the Capitol” which highlighted numerous CALS Departments and a “Capitol luncheon” day in which we participated in along with a number of Wisconsin Meat processors and Cheese Makers. At this year’s RMC in Auburn, the 2014 RMC invitation video we had helped develop was shown and was well received. If you haven’t seen the video, check out the link to it mentioned later in this newsletter. When the housing registration was released recently, the headquarters hotel sold out in just a few days. We hope you all are planning on attending next year’s RMC so be sure to make your reservations soon. If you would like to assist with our host role, please contact me. You will find exceptional news on the progress towards building a new meat lab later in the newsletter as well. Happy Holidays to you and your family!

Dennis R. Buege Meat Science Scholarship

On Saturday, April 6, 2013, Adam Bartling was awarded the Dennis R. Buege Meat Science Scholarship. Adam received a $1000 scholarship and a plaque during the Wisconsin Association of Meat Processor’s Spring Convention banquet. Adam is a native of Waterford, Wisconsin located in Racine County. Adam’s major is Food Science. He has been very active as an undergraduate research assistant in Dr. Sindelar’s lab measuring residual nitrate and nitrite using a very advanced HPLC system as well as performing other chemical determinations. Adam also works part time as a QC Auditor for Oscar Mayer. He was a summer scholar in the Food Research Institute under the guidance of Dr. Andy Milkowski. He has attended a Reciprocal Meat Conference and participated in meat science product development teams. Adam certainly has demonstrated excellence academically and interest in the field of meat science. Congratulations Adam on your fine achievements. Adam was presented the plaque by Dr. Dan Schaefer.
A ‘Titin’ Retires

Professional accomplishments and record of university service of Dr. Marion Greaser

In June 2013, Dr. Marion Greaser completed 42 years of faculty service with the University of Wisconsin. He has been the primary instructor for the graduate Muscle Biology 725 course and a co-instructor for the undergraduate Animal Science 305 throughout this period. He has also lectured in Biocore Cell Biology, supervised a muscle related lab in the Cell Biology laboratory, and made shorter term contributions to other Animal Science and Food Science courses. He is a co-author of a widely used undergraduate textbook entitled “The Meat We Eat”. During his career he has supervised 18 postdoctoral or sabbatical fellows, 12 PhD students, 3 MS students, and numerous undergraduates. In addition he has provided extensive mentoring of numerous other graduate students and post-doctorates in the Meat Science/Muscle Biology program. Dr. Greaser’s research program has been a unique blend of fundamental work related to muscle contraction/muscle growth with applied agricultural research in the area of meat science. His early work led to the characterization and naming of the subunits of the protein troponin (other workers have subsequently used this information to develop the most widely used blood test to identify individuals who have experienced a heart attack). In the last few years he has made major contributions to understanding the structure and function of the giant protein titin, including a discovery of a mutation in rats that mimics human dilated cardiomyopathy. Dr. Greaser’s research has also led to new insights in the meat science area. He and his co-workers were first to show that titin becomes structurally altered in postmortem muscle, and that this alteration contributes to improved meat tenderness. In addition he collaborated in the development of a patented procedure that uses sodium bicarbonate to improve pork meat quality. His work has resulted in 169 refereed publications, 44 symposium and invited presentations, 14 book chapters, and 1 textbook. These publications have over 9000 literature citations as of April 2013 (Google Scholar). Honors include the Distinguished Research Award from the American Meat Science Association, the Meats Research Award from the American Society of Animal Science, and the Outstanding Researcher Award from the American Heart Association of Wisconsin. Dr. Greaser has served on the editorial boards of the Journal of Food Science, the Journal of Muscle Foods, Meat Science, and the Encyclopedia of Animal Science. He also served a 5 year term as the Campbell-Bascom Professor. Dr. Greaser has served the University of Wisconsin-Madison with terms on the Faculty Senate, the University Facilities and Planning Committee, the Biological Division Tenure review committee, the Director of the Muscle Biology Laboratory, the 10 year review committee for the undergraduate Biology major, the CALS curriculum committee, and the CALS Animal Care and Use Committee.
On August 28th, the Department held a retirement party for Dr. Greaser at the West Madison Research Station. The retirement party featured a cookout with brats and burgers outside before moving inside for a retirement program. A special “Titan of Titin” cake prepared by Alicia Russell was served. The program included presentations by Dr. Schaefer on behalf of the Department of Animal Sciences, Dr. Richard Moss (Associate Dean, School of Medicine and Public Health) as a longtime collaborator, and Dr. David Gerrard (Department Chair, Animal Science at Virginia Tech) providing a testimonial about Marion’s impact beyond the borders. Dr. Gerrard had never collaborated with Marion. Nevertheless he indicated Dr. Greaser’s research profoundly affected his career and so many more that Marion likely never even met. David flew in from Virginia just for Marion’s retirement. Suzi Grundahl (Marion’s daughter) and her husband also shared their great admiration for Marion. Marion was presented with some nice gifts that were purchased through the kind donations sent by his friends and colleagues. Marion, being a passionate Badger fan, was presented with an autographed UW basketball, a set of basketball tickets with the opportunity to sit in the announcer’s booth during the game, a very special UW rocking chair, and a UW-framed picture. As a funny surprise gift, Marion was given a SWAP bike (UW’s surplus). As some of you know Marion used a SWAP bike at UW as a low cost means of on-campus transportation. Now he will have peddle power with an “upgraded” version for home use. The party was a great success.
Fermented and Dry-Cured Meat Products School

On August 27th and 28th, 2013 twenty-three Master Meat Crafter Candidates arrived on the UW Campus for the final short-course of the Master Meat Crafter Training Program, the Fermented and Dry Cured Meat Products School. This intensive two-day course kicked off with presentations on topics including: basic meat science for fermented and dry cured meat products, manufacturing principles, the microbiology of dry sausages, water activity, shelf stable products and acidification techniques for dry and semi-dry sausages. After a presentation-packed morning, the candidates had a chance to apply their newly-gained knowledge during a product manufacturing demonstration. Together, the group made a variety of fermented and acidulated snack sausages, pepperoni, sopressata and genoa salami products. The first day of the course concluded with a very engaging lecture on the importance of marketing and the utilization of balance sheets in the meat industry.

The second day began with the evaluation of the fermented products made the previous day. After sensory evaluation and discussion, the group headed back to the classroom to explore the worlds of starter cultures, thermal processing, dry-cured meat products and the casings used in processing dry and semi-dry sausages. After a manufacturing demo, where dry-cured bacons and hams, and a few different lomo and coppa products were made, the group listened to presentations on the regulatory and food safety aspects of making dry-cured products and dry and fermented sausages.

Similar to the previous short-courses, this course contained a variety of learning opportunities ranging from hands-on demonstrations and product evaluations to very informative presentations from instructors with innumerable years of industry experience and expertise. With the completion of this final short-course, the MMC Candidates can look forward to Graduation on January 17th, 2014, where their Plant Projects and Mentorship Programs will be presented.
Jared Wendt: Graduated in May 2013 with a Bachelor’s of Science in food science. Upon graduating, Jared took a position at Cargill Meat Solutions Inc. in Butler, WI. As an undergraduate, Jared worked for three years in the meat lab as a processing superintendent. After completing a three month plant rotational training program, Jared has assumed the role of production supervisor at Cargill. In regards to his experiences as an undergrad, Jared says that “the meat lab was instrumental in my career preparation and passion for meat production.”

Lizzy Kopp and Madisen Potratz, undergraduates working for Bucky’s Butchery, have added a creative twist to their daily duties at the meat lab. Lizzy and Madi saw the need for a more diverse product line and decided to develop just that. Their first formulation, Bucky’s Sweet and Spicy Smoked Sausages, grabbed the attention of Bucky’s Butchery patrons and left them asking when more products like this would be created. In the near future, Lizzy and Madi will be unveiling their Hawaiian Bratwurst and a new beef-jerky formulation. Stop by Bucky’s Butchery on Fridays from 11:00am-3:00pm and taste what these ambitious undergrads are cooking up!

Undergraduate Spotlight:

Meat Science Group Visits Chicago; Presents at Process Expo

In early November, members of the UW Meat Science team attended the 2013 Global Food Equipment and Technology Show held at McCormick Place, Chicago. This year’s Process Expo focused not only on the manufacturing materials associated with the food and beverage industry, but also included many educational opportunities for attendees. Dr. Jeff Sindelar, Dr. Mark Richards, Dr. James Claus, and Dr. Kathleen Glass (UW Food Research Institute) gave a number of presentations on topics ranging from food safety to the meat science behind sausage processing. In addition to presenting at the Expo, the UW Meat Science Laboratory and the Food Research Institute hosted a booth at the tradeshow highlighting many of the programs and attributes offered by the two UW programs.
Bucky’s Butchery at Union South Farmers Market

This Fall, the Wisconsin Union hosted a weekly Farmer’s Market outside of the newly-constructed Union South building. The market featured a variety of products including the traditional apples, squash, honey, etc... and in addition to all of these Wisconsin Fall favorites, Bucky’s Butchery was asked to participate as well. Hosting a booth at the farmer’s market was a great opportunity to spread the word about the Meat Lab and Bucky’s Butchery. It also allowed for a forum for local consumers to ask questions about the meat products they were purchasing.

RMC 2014 - Destination Madison!

The American Meat Science Association’s Reciprocal Meat Conference is being co-hosted by the University of Wisconsin and Oscar Mayer and will be held from June 15th-18th, 2014. The host committees have been working diligently to make this year’s 50th Anniversary of the RMC the best conference yet. For more information on reservations and event services, please visit the AMSA’s website: http://www.meatscience.org/rmc/

We look forward to seeing you in June!

SAVE THE DATE!
June 15-18, 2014
Madison, WI
Graduate Research: Bill Shazer

Bill Shazer is a Master’s student under the direction of Dr. Jeff Sindelar. Bill will be completing his degree in the spring of 2014. Bill began his post-graduate work at UW-Madison in the spring of 2012, after obtaining a Bachelor’s degree from the Department of Food Science at Purdue University. While at Purdue, Bill was involved in the Food Science Club as Vice President and undergraduate research focusing on Atmospheric Non-Equilibrium Plasma Processing on pre-packaged water and cranberries. At the University of Wisconsin-Madison Bill has been fortunate to work on a wide variety of processed meat projects and extension activities. The main focus of Bill’s Master’s project is investigating the effect of reduction of sodium in various processed meat products through use of descriptive trained and consumer panels on the UW-Madison campus. After graduation Bill will be working at Ed Miniat, a processed meats company near Chicago, IL where he will work in the Technical Sales position focusing on new product development and launches with customers.

Master Meat Crafter Graduation
January 17th, 2014

After two and a half years of tedious studying and the execution of a plant research project, twenty-three candidates will receive the distinction of Master Meat Crafter. On January 17th, 2014 each candidate will give a 15 minute presentation on their plant project and mentorship program and will answer any questions that arise about their particular projects. Upon completion of the presentations, a formal graduation ceremony will be held at the Double Tree Hotel, Madison.
A Few of the Highlights from Summer 2013

- In May, 2013 Dr. Sindelar and his lab group attended the IFFA Tradeshow in Frankfurt, Germany.
- Amanda King, Bill Shazer and Jing Zhao presented scientific posters at the Institute of Food Technologists (IFT) Annual Meeting in July.
- Dr. Richards taught Poultry Products as part of the Midwest Poultry Consortium Summer Program conducted at UW-Madison.
- In June, 14 graduate and undergraduate students packed into mini-vans and headed to Reciprocal Meat Conference (RMC) in Auburn, Alabama. Many of the attendees participated in the Taste of RMC competition.
  - Dale Perez, Robby Weyker, Amanda King, Nantawat Tatiyaborwomtham, and Bill Shazer presented posters at the conference. Amanda King’s poster placed second in the PhD poster competition.
- Amanda King was the recipient of the Travel Award and placed second in the Oral Competition for Developing Scientists at the International Association of Food Protection (IAFP) Meeting in North Carolina in August.
- Dr. Richards’ Lab presented at the Maple Leaf Farms Duck Research Workshop on Studies of Residual Blood & Erythrocyte-Mediated Lipid Oxidation.
- Robby Weyker, Dr. Sindelar, Bill Shazer and Amanda King attended the American Association of Meat Processors (AAMP) Annual Meeting in Charleston, SC in July.
- Dr. Milkowski, Dr. Claus, Dr. Zhao and Amanda King attended the ICoMST (International Congress of Meat Science Technology) convention in Izmir, Turkey in August.
  - Dr. Claus’ and Dr. Jing Zhao’s research on the “Influence of Partial or Complete Replacement of Sodium with Potassium Chloride Blends on Protein Extraction and Meat Quality of Sausages” was selected by the ICoMST technical committee as one of the few for an oral presentation.”
  - Dr. Claus also participated in the closing conference session on a panel along with Dr. Euro Poulanne (University of Helsinki, Finland), Dr. David Hopkins (NSW Department of Primary Industries and Charles Sturt University, Australia), and Dr. Declan Troy (Ireland) to address the theme of the “Power of Meat”.
- Dr. Richards published an Invited Review Article in the Antioxidants & Redox Signaling Journal on Redox Reactions of Myoglobin.
- Dr. Claus attended an invitation-only American Heart Association Sodium Conference (June 19-20, 2013) to participate in the Sodium Reduction Initiative.
- Neeti Dahal and Kathrine Bak joined Dr. Mark Richard’s Lab as post doctoral students.
Dr. Timothy Knight joins MBL as Associate Adjunct Professor

Dr. Timothy Knight joins MBL as an Associate Adjunct Professor. The Meats group is delighted to announce Dr. Knight was appointed as an Associate Adjunct Professor effective October 1. Dr. Knight is a R&D scientist at Oscar Mayer (Division of Kraft Foods) in Madison. During the past several years Tim has provided invited lectures and laboratory exercises in Animal Sciences 515 (Commercial Meat Processing) that have greatly contributed to this course. This fall he has continued that role in sharing his expertise associated with the manufacturing various sausages and batter and breading technology. He also participates in the development of the students’ semester processed meat project. Tim has a Ph.D. from Texas A&M University in College Station where he focused on the impact of combined microbial intervention strategies on processed meat quality and safety. He also spent time as a lecturer at Texas A&M, teaching courses in food science, food chemistry, and instrumental analysis.

Meat Science Department Represented at “A Day at the Capitol”

As part of a CALS day at the Capitol, the Meat Science and Muscle Biology Lab had a display at the Capitol. Robby Weyker and Bill Shazer demonstrated sausage manufacturing while Dan Schaefer and Jim Claus visited with delegates and visitors interested in learning more about meat science. In addition, Tom Hoffman with Mepaco graciously attended this event to speak on behalf of the industry’s perspective of the value of our program and the need for a new facility.
An Update on the New UW Meat Laboratory Project

The Meat Science and Muscle Biology Lab capital project is alive and well! Governor Walker and the State Legislature included this project in the list of capital projects funded in the 2013-15 biennial budget. The State of Wisconsin has provided $22.8 million of bonding authority toward the total project that will cost an estimated $42.8 million. The longstanding expectation of the State has been that there would be $20 million of non-State funding to match the State’s investment in this project. In the past two months, we received a $1 million contribution and a $9 million pledge from a donor who wishes to remain anonymous. With this fantastic development, we are now at $17.6 million of private sector donations. Numerous members of the WI Association of Meat Processors have also sent donations and pledges. It is exciting to report that we are closing in on our goal of $20 million!

This level of support has fostered numerous design meetings. These discussions are laying the foundation for eventual guidance that will be provided to the yet-to-be-selected architectural and engineering (A/E) design team. Those who are familiar with the capital project construction process forecast that the A/E team will be selected in June 2014. I am told by those who are close to the governance process that our project is solidly on-track, but that the process is time-consuming. We will be patient and thorough in our planning because we know that we have the opportunity to design a new lab for service to students, the industry and citizens for the next 80 years.

This project will result in the construction of a replacement laboratory on campus, near the current site of the Meat Lab. The new lab will be a site where we will demonstrate the conversion of muscle to meat, and good manufacturing practices. We will also have the unique capability to study intervention methods that will address problems that involve pathogenic microbes in processed meat products. An economically significant and new portion of our program includes the discovery of new agricultural and biomedical uses for molecules made only by animals and available at the time of harvest.

For all who have contributed or who will contribute to this project, you have a role in ensuring that the Wisconsin meat industry will be served effectively for decades to come. There are so many people to thank for the progress of this project. It has truly been a team effort. On, Wisconsin!

With warm wishes for the holiday season,

Daniel M. Scharf
Professor and Chair
Department of Animal Sciences

Want more information?
Please visit:
www.supportuw.org/how-to-give/school-college/cals/meat-and-muscle/
Meat Science Trivia!

Rack your brain and see how much meat science knowledge you’ve retained.

Answers to the Fall trivia questions will appear in the Winter issue of Meat Science Quarterly. Best of luck!

1. What is the only sausage product that was developed in the US?
2. What is the limit (percentage) of added water in fresh sausages?
3. What does PFF stand for?
4. What is the major microorganism that sodium nitrite is used to control?
5. According to Appendix A, what temperature achieves an instantaneous 7 log lethality?
6. What is the smallest repeating unit in muscle tissue?
7. What is the number one spice used in the meat industry?

Thank You for Reading!

Greetings,

We hope you have enjoyed the Fall 2013 issue of the University of Wisconsin-Madison, Meat and Muscle Biology Laboratory: Meat Science Quarterly. Please keep an eye out for our Winter edition coming your way in the near future. If you have any questions or comments, please email them to:

MBLNews@ansci.wisc.edu