

WELCOME FROM DR. JANICE SWANSON



Classes are out for the summer and the halls of Anthony are quiet. It's August and we will soon hear again, as in years gone by, the voices of students ready to start a new academic year -- a fresh breeze of new ideas and excitement. It's the best part of life in Anthony Hall and our South Campus farms. Students bring an edge with them that keeps us on our toes. Each year is a new beginning.

New beginnings are also the result of transitions whether high school to college, graduate student to faculty or becoming a parent for the first time. Nothing stays the same; transition and change are inevitable components of life and we have experienced our share in the Department. But we are here, we are stable, and we are setting our self-determined sights on continuing a bright and lively future for animal science. We are the Spartans and Spartans Will. In the past we have had an off and on relationship with producing "the department newsletter". How best to communicate? Facebook? Twitter? The plume of social communication continues to spread. The newsletter will be available twice per year through our established communication portals including email delivery. We are connecting our life line to our alumni and friends.

Good things are happening in Anthony Hall and on our farms. When you read this newsletter you will be inspired by the accomplishments of our students, staff and faculty. Please reconnect by sending us your updates to feature in the alumni section. Have a great summer!

Best Wishes—

Handwritten signature of Janice Swanson.

UNDERGRADUATE STUDENT NEWS/AWARDS



Julie Feldpausch competed against 17 undergraduates at the Midwest American Society of Animal Science and American Dairy Science Association meetings in March in Des Moines. She placed 2<sup>nd</sup> in the undergraduate student oral research competition with her research entitled, Effect of organic Zinc supplementation on metallothionein and zinc-transporter- 1mRNS expression in the duodenum of grow-finish pigs. Her collaborators were Patty Weber from the College of Veterinary Medicine, Don Mahan from the Ohio State University and Gretchen Myers Hill from Animal Science.

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Sarah Schmidt, MSU senior, received first place recognition at the 2012 ADSA meeting for her presentation in the Undergraduate Original Research Competition titled "Incorporation of palmitic and stearic acids into plasma lipid fractions of lactating dairy cows". Sarah was advised by ANS faculty Adam Lock.

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Dr. Adam Lock & Sarah Schmidt



**Beth Rohl**, Animal Science senior, was chosen Big Ten Indoor Field Athlete of the Year. The announcement went out from the MSU conference office on Wednesday, Feb. 27, 2013. This is the second Field Athlete of the Year recognition for Beth, as she received the award for the first time in the 2011 outdoor season.

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**The MSU Dairy Judging Program** had an outstanding Fall 2012 campaign. Close to 40 young people including Collegiate, Ag Tech, and 4-H members from across the state participated in various practices, trips, and contests.



Pictured left to right are members of the Michigan 4-H dairy cattle judging team and 2012 national champions: Savannah Katulski, Hayleigh Geurink, Dr. Joe Domecq (coach), Sarah Black, Megan Bush and Megan Filhart. (Photo provided courtesy of Agri-Graphics Ltd.)

A highlight of the fall competitions was the Michigan 4-H team winning the National 4-H Dairy Judging Contest. Three of the 4 team members are MSU students: Megan Bush, Hayleigh Geurink, and Savannah Katulski. Megan Filhart attends Alma College.

According to the Michigan Dairy Youth Program Newsletter, “By winning first place overall, the team earns an invitation to travel to Europe for a two-week International Livestock Judging Tour, an honor awarded to the three top-ranking teams at the national contest. This year marks the sixth time in nine years that the youth team from Michigan has earned this honor – it placed second or third five times in the last eight years – but 2012 marks the first time it has finished alone in the top spot.”

A complete list of results and experiences can be found

at <http://www.midairyyouth.ans.msu.edu/uploads/file/Winter%202013%20FINAL.pdf>.

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**The Animal Science Undergraduate Research Student Association (ASURSA)** had another eventful year as club membership continued to increase to 53 undergraduate students. In fall 2012, ASURSA members Caroline Ylioja, Claire Vanderson, Sarah Woodruff, led by the ASURSA research chair Nicole Martinec, were recipients of a near \$9,000 Gerstacker Entrepreneurial grant for the 2012-2013 academic year, under the mentorship of associate professor Nathalie Trottier. The grant was awarded to conduct a study evaluating the nutritional benefits of potato chip scraps, donated by the Michigan based company *Better Made*, as partial replacement for corn in diets of young growing pigs. Additional club activities included participation in Small Animal’s Day, sponsoring a blood drive, and a



L-R: Caelah Doerr, Ashely Rogers, Erika First, and Nicole Martinec

trip to the Better Made factory in Detroit. Senior Caroline Ylioja served as club president and ANS faculty Elizabeth Karcher and Nathalie Trottier served as co-advisors.

**Animal Science Undergraduate Research Forum (ASURF)**

Students presented preliminary results at the University Undergraduate Research and Arts Forum in April 2013, and at the 4<sup>th</sup> Annual Animal Science Undergraduate Research Forum (ASURF) which the club hosted on April 5, 2013. The thirteen undergraduate students who presented their original research projects were evaluated by judges ANS faculty Mike VandeHaar and Janice Siegford, and ANS graduate



Lynn Nagengast presenting at the 4<sup>th</sup> annual ASURF

student, Robert VanWyhe, and the first place award went to ANS junior Lynn Nagengast, second place award to ANS junior Jenna Carter, and third place award to ANS senior Caroline Ylioja.

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**The MSU Rodeo Club:** For the second year in a row, the Spartan Stampede Rodeo was chosen by the membership of the International Professional Rodeo Association as the “Indoor Rodeo of the Year”. Club members, along with advisor Dr. Brian D. Nielsen and coach Denise Fullhart, traveled to the IPRA National Finals Rodeo in Oklahoma City in January to accept the award.



While that award brings widespread recognition to the Spartan Stampede Rodeo and attests to the quality of MSU’s rodeo, it is the work done by the club members within the state that is even more notable. Each year, members work closely with various school, youth, and church groups throughout the mid-Michigan region to provide educational opportunities for young people. Their travel extended to

Saginaw in late January to work with vulnerable students at Holy Cross Children’s Services. Furthermore, before this year’s performances, and with support from CG Financial Services, the club organized a special youth rodeo performance for nearly 400 youth from area schools, prior to which the students could attend various agricultural educational programs. Additionally, prior to this year’s rodeo, the club hosted their 2<sup>nd</sup> Annual Charity Jackpot in which funds were raised for the Wounded Warrior Project – a group whose mission is to honor and enable wounded service members.

A new event for the 44<sup>th</sup> Annual Spartan Stampede Rodeo in February, the club hosted a Celebrity Roping Contest. Participants included T.J. Duckett (former MSU football star and NFL running back), Stephanie McCoy (co-host of WITL’s morning show), Hondo Carpenter (founder and publisher of Spartannation.com), Evan Pinsonnault (morning anchor and reporter on WLNS TV-6), and Brian Calloway (Sports reporter for the Lansing State Journal).



L-R: Dr. Brian Nielsen (Advisor), Tarajo Reinhart (2012-13 Secretary), TJ Duckett, Denise Fullhart (Coach), Stephanie McCoy, Hondo Carpenter, Evan Pinsonnault, Brian Calloway, Amanda Freis (2012-13 President), Max LaMee (2013-14 Vice President), Mindy Hill (2013-14 President), Kyle Fullhart (Assistant Coach)

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L to R: Sarah Wells (Coach), Emily Mitchell, Patrick Owens, Andrew Weaver, Lane Carpenter, Kelsey Steketee, Audrey Ing, Julie Feldpausch, Molly O'Brien

**Meat Judging Season in Review:**

The 2012 MSU Meat Judging Team competed in 4 contests throughout the fall. They came into the season knowing that a lot of schools started out with more experience than them and that they would have to work very hard to make it to the Top 5 at any contest in the fall. At the first contest, the Eastern National, MSU finished 8th. Then at the American Royal, MSU finished 7th with some additional team recognition in various divisions of the contest and Picking up some momentum, the team flew to Texas for the High Plains contest where their hard work paid off with a 3rd place overall team finish! The 2012 team wrapped up their year with an outstanding 4th place finish at the International!



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On April 7<sup>th</sup>, 2013 the **MSU Horse Judging Team** held the 2<sup>nd</sup> Annual Hoofin' it for Horses 5K Run/Walk at the MSU Horse Teaching and Research Center. Over 200 runners & walkers participated in the event with nearly 100 volunteers and spectators. The event was featured on two local news stations. The MSU Horse Judging team would like to thank all those who sponsored, volunteered, or participated. Nearly \$5,000 was raised to help offset travel costs for the team. We're looking forward to the 3<sup>rd</sup> Annual April 6<sup>th</sup> of 2014!

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**Livestock Judging Team**

The MSU Livestock Judging Team once again has much to be proud of from the 2012 competition season! Team members were Hannah Bollinger, Katie Cook, Taylor Harrison, Ali Harwell, Sarah Kennedy, Beth Oliver, Jon Stelter, and Beth Wernette. Congratulations on a very successful season! Some team highlights below:

**NAILE** - 10th high team, 6th high team in sheep

**American Royal** - 6th high team overall; 3rd in cattle, 6th in sheep, 8th in reasons.

**Harrisburg** - 2nd out of 10 schools. MSU was 1st in cattle, 1st in swine, 1st in reasons, 4th in sheep. Sarah Kennedy high individual scoring an incredible 960 out of a possible 1000.

**Keystone Judging Contest - Individual Results**

Sarah Kennedy: High Individual overall, 1st in Beef Cattle, 5th in sheep, 7th in swine, 2nd in reasons

Ali Harwell: 4th Overall, 6th in Beef

Katie Cook: 5th overall, 2nd in Swine, 1st Reasons

Jon Stelter: 3rd in Swine, 4th in Reasons

Taylor Harrison: 10th in Swine

**Aksarben** - 4th high team: Jon Stelter high individual, Taylor Harrison 2nd high individual, in the sheep division.

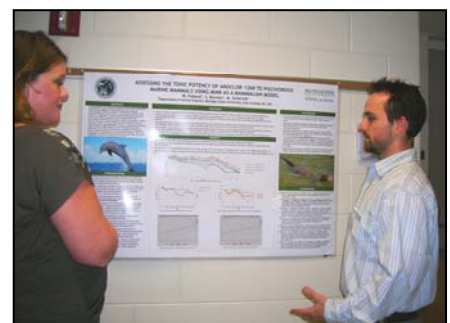
**GRADUATE STUDENT NEWS/AWARDS**



**Animal Science Graduate Student Association (ASGSA)**

The 7<sup>th</sup> annual Animal Science Graduate Research Forum was held on September 28, 2012 which consisted of 5 oral sessions with 17 participants, a poster session with 14 submissions, and an ice cream social to top off the afternoon. The student coordinators were Master's student Jasmin Kompare, Doctoral student Paola Piantoni, and Doctoral student Robert Van Wyhe. Faculty advisor was Dr. Jason Knott. Attendees were impressed with the depth and diversity of research undertaken by these emerging scientists!

The ASGSA officers for the 2012-13 year were: President-Courtney Daigle, Vice-President-Jasmin Kompare, Treasurer-Marisa Erasmus, Secretary-Melissa Elischer. Incoming officers for 2013-2014 are: President- Jen DeVries, Vice-President-Dave "of the pigs" Chamberlin, Treasurer-Jackie Ploetz, Secretary-Sarah Burczynski.



Master's student Will Folland presenting his poster, "Assessing the toxic potency of aroclor 1268 to piscivorous marine mammals using mink as a mammalian model"

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**Graduate Student Awards**

**Yvonne Badke** – Recipient of the Jacob (Jake) A. Hoefler Endowed Fellowship

**Courtney Daigle** – Recipient of the Outstanding PhD Student Award

**Melissa Elischer** – Recipient of the Outstanding Master Student Award

**Jasmin (Kompore) Kenny** – Recipient of the Outstanding Graduate Student Teaching Award

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**Three Dept of Animal Science** graduate students participated in the Tri-State Dairy Nutrition Conference research presentation competition in Ft. Wayne, IN, April 23.

Jackie Ploetz working with Dr. Adam Lock, placed first in the competition for her research presentation entitled, "Impact of Unsaturated Free Fatty Acids and Triglycerides on Milk Fat Synthesis in Dairy Cattle. As first place winner Jackie also presented her work in the main session of the TSDNC on April 24.



Left to right: Eduardo Rico Navarrete, Katherine Boesche (2<sup>nd</sup> place from Purdue), Jackie Ploetz

Eduardo Rico also working with Lock, received third place for his presentation, "Palmitic Acid Increased the Yield of Milk Fat and Improved Feed Efficiency Across Production Level of Cows Compared with Stearic Acid".

Also, participating in her very first graduate presentation contest, Sarah Burczynski, working with Dr. Mike VandeHaar, made an excellent presentation "Residual Feed Intake is Repeatable When High and Low Starch Diets are Fed to Lactating Holstein Dairy Cows".

Nine students from Michigan State University, Ohio State University, and Purdue University participated in the competition. Go Spartans!

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**Two graduate student members** of the Animal Behavior and Welfare Group (ABWG) competed in the 12th Annual Intercollegiate Animal Welfare Judging and Assessment Contest hosted by the University of Guelph November 17-18, 2012. David Orban (MS, Zoology) and Melissa Elischer (MS, Animal Science) were part of a three member graduate student team that evaluated the welfare of four different species in both live and virtual settings. Overall, the team placed second among graduate teams and David Orban placed took top honors as the highest placing individual graduate student.

**FACULTY/STAFF AWARDS - July 2012 - June 2013**



**Dr. Dan Buskirk** was named 2012 Outstanding Extension Specialist, Michigan Association of Extension Educators

**Dr. Karen Chou** received a letter of recognition from the Editor-in-Chief of the Journal of Medical Toxicology (published by the American College of Medical Toxicology) that her journal article "*Phthalates in food and medical devices*" is one of the top cited articles in the Journal. Karen was lead author with coauthor Robert Wright. Congratulations Karen!

**Dr. Joe Domecq** was named the 2012 Hoard’s Dairyman Youth Development Award winner, Dr. Domecq was recognized at the ADSA awards banquet at the 2012 Joint Annual Meeting in Phoenix.

**Dr. Dave Hawkins** (retired ANS faculty emeritus) has been selected to have his portrait hung in the prestigious Saddle and Sirloin Club. This recognition is reserved for individuals who have demonstrated major impact and leadership to the livestock industry during his/her career.

**Dr. Camie Heleski** has received the American Veterinary Medical Association's (AVMA) 2012 AVMA Humane Award. Nominated by Dr. Janice Siegford, the AVMA Humane Award recognizes a non-veterinarian's achievements in advancing the welfare of animals via leadership, public service, education, research/product development, and/or advocacy. This award focused on Camie's work with the Animal Welfare Judging Competition, her research and outreach with working equids in developing parts of the world, her role as a Council member for the International Society for Equitation Science and her role as chair of the scientific committee for Canada's Equine Welfare Code (NFACC).

**Dr. Gretchen Hill** was presented with the Distinguished Service Award at the Michigan Sheep Breeders Association annual banquet held during Shepherd's Weekend. She was presented with a painting and cited for her service to the sheep industry and commitment to animal agriculture. Doug Uzelac, representing the MSBA, presented the award.

**Paula Hitzler** was nominated & selected by students for the 2013 Outstanding Faculty/Staff Award for the Institute of Agricultural Technology. Theresa Maine made the award presentation at the Ag Tech graduation.

**Dr. Janice Siegford** received the CANR Excellence in Teaching Award for Established Teachers. Nominated by Camie Heleski, this award is given to individuals who show strong evidence of positive impacts on students via teaching, people who show evidence of scholarship in their teaching and who embrace innovation in their teaching endeavors.

**Al Snedegar** was recognized by the National Swine Registry (NSR) for his lifetime achievements and national and international contributions to the purebred swine industry. The award was given at the 2012 Pork Expo.

**Dr. Juan Steibel** was the recipient of the prestigious Midwest Section/Branch Outstanding Young Animal/Dairy Scientist Award in Research. The award was presented at the meetings of ASAS/Midwest Branch ADSA in Des Moines in March 2013.

**Karen Waite** was the recipient of the 2013 Equine Science Society Outstanding Educator Award which is presented to a society member involved in teaching, extension or industry that has demonstrated excellence in the area of equine education either to students or persons in the industry. The award is meant to recognize the development of programs that are exceptionally effective at disseminating research based information in a manner which has an effect on the long term well being of horses and/or the horse industry.

**Faye Watson** was selected by the CANR Staff Advisory Committee as the May 2013 Staffer of the Month; nominated by Dr. Janice Swanson for Faye's outstanding work for the department.

## RESEARCH UPDATE



### **Animal Breeding and Genetics Group**

Research HighlightThe Animal Breeding and Genetics Group has been applying the latest DNA marker and sequencing technologies for developing strategies to improve production and health traits of dairy cattle and pigs. Using a combination of high density and low density marker panels, research efforts in pigs are aimed at finding low cost approaches for industry applications of genomic selection, as well as for identifying genetic loci and genes controlling economically important performance and pork quality traits. These projects are conducted in close collaboration with the National Swine Registry and the USDA-ARS Meat Animal Research Center. Additional research is focused on identifying genes involved in pig skeletal muscle development and host susceptibility to



Row 1 (left to right): Juan Steibel, Kelly Sporer, Cathy Ernst, Rob Tempelman - Row 2 (left to right): Matt Kuhn, Meredith Frie, Susannah Haupt, Jenna Carter, Jessica Switzenberg, Nancy Raney, Meredith Woodward, Yongfang Lu, Heng Wang - Row 3 (left to right): Jon Roussey, J.C. Wallace, Brooke Murphy, Ron Bates, Chunyu Chen, Yuqiang Zhao, Pablo Reeb, Yvonne Badke Not pictured: Paul Coussens

PRRS virus infection, and also genes whose expression is affected by DNA marker variants. A current ongoing project entails developing methods and software tools for providing effective selection of livestock using whole genome prediction under heterogeneous environments. Another project (PI: Mike VandeHaar) is multi-disciplinary and multi-institutional in scope as it involves studying the genetic architecture of and developing genomic predictions for feed efficiency in dairy cattle.

Research in dairy cattle also includes a continuing study of the immune response to *M. paratuberculosis*, the organism that causes Johne's disease. This work was recently expanded to include studies on the genetic basis of resistance or susceptibility to Johne's disease. Herds throughout Michigan are currently being

enrolled in this new five-year long initiative. An MSU patented cell line that grows numerous viruses extremely well, including human and avian influenza viruses, is currently being evaluated by vaccine manufacturers as a substitute for egg-based production of poultry vaccines. Research projects in the group are funded by USDA-NIFA, the National Pork Board, the Animal Agriculture Industry Coalition and the MSU Foundation.

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**Ireland Lab News**

Dr. James J. Ireland collaborates with other faculty (George Smith, Richard Pursley), students (David Burns, Danielle Scheetz) and research associates (Joe Folger, Fermin Jimenez-Krassel, Janet Ireland) in the Department of Animal Science and with faculty (Alex Evans, Pat Lonergan) and fellows (Francesca Mossa) at the



Dr. Ireland's Lab Group  
 Top Row l-r: Dr. Jim Ireland, Dr. Joe Folger,  
 Front l-r: Danielle Scheetz, Janet Ireland,  
 Fermin Jimenez-Krassel

Collaborators on research in bovine reproduction with Professor Ireland: top l-r: Dr. George Smith, Dr. Alex Evans, Dr. Richard Pursley; bottom l-r: David Burns, Dr. Pat Lonergan, Francesca Mossa

University College Dublin to examine the impact of the inherently high variability in follicle and egg numbers among cattle (ranges from 10,000 to 250,000 eggs and follicles at birth!) on their reproductive performance. New results show that dairy cows with relatively low numbers of eggs and follicles in ovaries have suboptimal fertility compared with their herd mates with greater numbers of eggs and follicles in ovaries. We have also demonstrated that mild undernutrition during the first trimester of pregnancy of beef cows or chronically high somatic cell count during pregnancy of dairy cows markedly reduces number of follicles and eggs in ovaries, increases aortic trunk diameter (associated with cardiovascular disease in humans) and enhances blood pressure in their female offspring. These findings imply that fertility and health of female offspring may be enhanced by better nutrition and health management during pregnancy of their mothers.



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### Lock Lab Research Highlights

The Lock Lab continues our research on the regulation and manipulation of ruminant lipid metabolism and the effect of diet on the production of bioactive fatty acids in the rumen and their subsequent impact on metabolism and milk fat synthesis.



Front (l - r): Courtney Preseault, Jorge Eduardo Rico, Lynn Nagengast, and Sun Yan  
Back (l - r): Katelynne Spaans, Tiffany Bryant, Jacquelyn Ploetz, Adam Lock, Joshua Garver, and Kelsey DeLand

We had several students present last summer at the 2012 American Dairy Science Association Annual Meeting in Phoenix, AZ. **Jacquelyn Ploetz** (Ph.D. student), **Jorge Eduardo Rico** (M.S. student), **Kelsey DeLand** (former undergraduate student), and **Sarah Schmidt** (former undergraduate student) all presented their research at this national meeting. Sarah presented in the Undergraduate Original Research Competition and won 1<sup>st</sup> place! Sarah is now pursuing her M.S. at Texas A&M. Kelsey was awarded 1<sup>st</sup> place at both the 2012 Tri-State Dairy Nutrition Conference Undergraduate Student Research Competition and the 2012 Department of Animal Science Undergraduate Research Forum. Kelsey is now pursuing her DVM at MSU's College of Veterinary Medicine. Jacquelyn also presented her research at the 2012 Tri-State Conference and was awarded first place in the Graduate Student Research

Competition.

Our current undergraduate students have also been hard at work on their research projects. **Lynn Nagengast** (ANS Junior) received a CANR Undergraduate Research Program Award that assisted with funding for her research on, "Incorporation of omega-6 and omega-3 fatty acids into plasma lipid fractions of lactating cows." **Joshua Garver** (ANS Junior) has been working on a project looking at the differences in free and esterified fatty acids in various feed products. Both Lynn and Joshua's projects were coordinated by **Catherine Klein** (former Post-Doctoral Research Associate), who is now a Dairy Research Scientist at Purina Animal Nutrition, LLC.

We have had several new students join our lab. **Tiffany Bryant** (ANS Sophomore) began working with us during the Fall Semester and has assisted in processing samples from various research trials. **Sun Yan** started as a Ph.D. student in January and her research will focus on biohydrogenation pathways and the formation of specific biohydrogenation intermediates under different dietary and rumen conditions. **Katelynne Spaans** (ANS Freshman) is our newest member and is getting acquainted with our research procedures and sampling methods both in the lab and at the dairy farm. We also welcomed a visiting researcher, **Wan Nooraida Wan Mohamed**, who joined us for two months from the Malaysia Palm Oil Board.

In 2012 our groups authored or co-authored 3 peer-reviewed journal articles, 4 conference proceedings, and 10 abstracts. One peer-reviewed journal article was in the Proceedings of the National Academy of Science from a collaborative project led by our colleague Dr. Russ Hovey at the University of California-Davis.

The success of our students and research program would not be possible without the management, training, and mentorship by our research technician and lab manager, **Courtney Preseault**. Thank you Courtney! This past year has been a productive and rewarding one. We would like to thank everyone whom has helped and supported our research and outreach activities, both at MSU and within the dairy industry.



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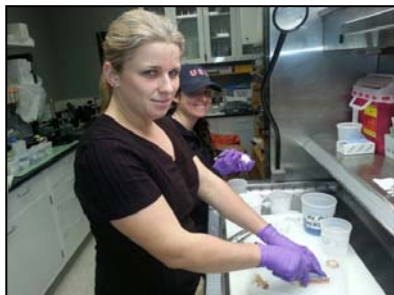
### Dr. Kang's Research Program

One of Dr. Ik Soon (Ike) Kang's research topics is to add value to food products. In meat industry, both packers and processors are interested in accelerated conversion of muscle to meat with quality improvement. Recently, Dr. Kang's research team has developed an innovative processing method to improve raw and processed meat quality. Using the method (hot-boned/curst-freezing chill/cold-batter mixing), Dr. Kang was able to significantly reduce carcass chilling time, improve processing yield, and enhance protein functionality. With the rapid chilling method, Dr. Kang is actively testing if pale, soft and exudative (PSE) issue can be prevented in turkey and pork industries, causing an annual loss over \$200 million, respectively. More interestingly, the processing method is under way of testing for fat and sodium content reduction in processing meat products with no organoleptic quality loss. An invention disclosure form for the new processing technique has been submitted to MSU Technologies.

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### Trottier Lab News

In Dr. Nathalie Trottier's research program, amino acids continue to flow through lactating sows' feed bins as a way to improve the efficiency of nitrogen utilization and reduce nitrogen excretion. Along with co-workers Wendy Powers, professor and Christopher Wolf, professor from the Department of Agricultural, Food and Resource Economics, Dr. Trottier was awarded a grant by the National Pork Board to assess the physiological, environmental and economical impact of feeding reduced protein diets to lactating sows with the use of crystalline amino acids under heat stress environment. The nitrogen and ammonia excretion data will be used to develop models for prediction of nitrogen excretion for nutrient management plans and for assessment of potential impact of sow feeding on air quality. Industry partners include Halchemix Canada and Ajinomoto Heartland USA who have generously supplied amino acids for the research, and International Ingredients who have also donated near 4 tons of sugar food products, a novel feed ingredient for sows in the study. Graduate student David Chamberlin will be directly involved in conducting the work as part of his Master's research both in the air quality laboratory and



Graduate student Jennifer De Vries and undergraduate student Jenna Lubitz at the Investigative Histopathology Laboratory learning how to prepare equine intestinal tissue for histological examination.

intensive metabolism unit facilities. Dr. Trottier was also a recipient of a grant from the Ontario Pork Board in collaboration with Dr. Kees de Lange from the University of Guelph in Ontario, Canada, in matching support for the MSU Animal Agriculture Initiative, to estimate the efficiency of nitrogen and lysine utilization in lactating sows, and to quantify the expression of genes encoding proteins responsible for lysine utilization by the mammary cells. Graduate student Lee-Anne Huber, visiting from the University of Guelph under Kees de Lange, will spend near 2 years at MSU working under this project as part of her doctorate degree. Both studies will use the new National Research Council (2012) recommended amino acid standardized ileal digestible (SID) levels and the net energy system.

Dr. Trottier's program also features the study of underlying mechanisms causing aberration in nutrient (including amino acid and glucose) utilization in horses suffering from Cushing's disease. This study is funded from the Morris Animal Foundation competitive grant program to Dr. Trottier and co-worker Dr. Harold Schott from the Department of Large Animal Clinical Sciences in the College of Veterinary Medicine. Graduate student Jennifer De Vries is working under this project as part of her Master's degree, with the assistance of undergraduate student Jenna Lubitz, recipient of a CANR Undergraduate Research fellowship. Finally, Uffe Krogh Larsen visiting from Aarhus University in Foulum, Denmark under Peter Theil is in Dr. Trottier's lab to assess whether supplementary arginine increases blood flow to the mammary gland and improves

piglet weight gain as part of his doctorate research. Ajinomoto Heartland, USA has agreed to provide the arginine needed to conduct the study.

## EXTENSION/OUTREACH UPDATES

### **MCA/MSU Bull Evaluation Program: A 25 Year Strong Partnership**

*Dr. Dan Buskirk, Assoc. Professor/Beef Extension Specialist*

*Dr. David Hawkins, Professor Emeritus*

This year marked the 25th anniversary of the MCA/MSU Bull Evaluation Program. The goal of this successful program has been to aid beef producers in genetic selection by obtaining superior bulls that have been evaluated in a common environment for growth, breeding and structural soundness, and carcass merit. The program was launched in 1988 as a joint venture of the Michigan Cattlemen’s Association (MCA) and the Michigan State University (MSU) beef cattle extension faculty and staff. The annual evaluation is held in a central station from October through March at the Plank Farm, Crystal, Michigan. An elected committee composed of representatives from the breeds being tested, along with MCA and MSU staff guide and manage the program.



Over the 25 years from 1988-89 through 2012-13, a total of 275 seedstock breeders from Michigan and surrounding states have consigned 2,172 bulls to be evaluated. A total of 1,403 bulls

have passed the rigorous test and have been sold with the most recurrent breeds in recent evaluations being Angus, Simmental and SimAngus, Red Angus, Hereford, and Charolais. Although the majority of bulls have been purchased by Michigan beef cattle producers, bulls have been purchased by beef producers and A.I. organizations from Ohio, Indiana, Iowa, Kansas, South Dakota and Washington. In 2013, 79 bulls sold for an average of \$2,922, resulting in the highest grossing sale in the program’s 25-year history. Over the last decade, the program has grossed more than \$1.5 million for the seedstock consignors.

Based on recent buyer’s survey data, the additional value of production by evaluation program bulls, compared to non-evaluated bulls, is estimated as \$750,000 annually. In addition, seedstock consignors estimated their economic returns are increased annually by more than \$80,000 by their engagement in the program. These dollars are available for reinvestment in the beef industry and provide a strong testimony to the impact of the MCA/MSU program partnership. Learn more at: <http://beef.msu.edu/bullevel>

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### **Equine Business Network**



Submitted by: [Christine Skelly](#), Michigan State University, [skellych@msu.edu](mailto:skellych@msu.edu), 810/338/8200

Michigan State University in collaboration with University of Minnesota, University of Nebraska, and Iowa State University, using resources from [eXtension.org](http://eXtension.org), [MSUglobal](http://MSUglobal), and [My Horse University](http://MyHorseUniversity), developed the [Equine Business Network](#) (EBN) through USDA regional business grants. EBN provides online education in business issues facing professionals in the horse industry.

In February 2013, EBN launched five online horse business short courses. Each course contains

an interactive quiz, decision tool, articles and relevant links. The courses focus on human resource, liability and farm safety issues. Collaborators from the [Center for Agricultural Law and Taxation](#), Iowa State University, presented topics regarding immigration, youth and contract/employee labor law and liability issues of equine veterinary practices. [Karen Waite](#), Michigan State University, presented a webinar on worker safety around horses.

Currently over 400 equine business professionals from across the United States have registered for the dynamic, online short course series. This has enabled them to connect with land grant universities, equine business experts, networking opportunities, and other equine business resources. The online courses are open to all and free of charge.

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### Vets to Ag Program

Eleven unemployed U.S. veterans participated in and completed the **Vets to Ag** six-week training program on meat



processing and cutting in January and February 2013. The first four of the six weeks were spent at the Kellogg Biological Station in Hickory Corners, MI, learning some fundamentals of agriculture and meat production, and also brushing up on resume writing and leadership skills. The final two weeks were spent in intense laboratory experience at the Meats Lab in Anthony Hall on campus.

The training program was developed through the partnership of MSU Institute of Agricultural Technology (IAT), a program in the College of Agriculture and Natural Resources, and the Veterans Services Division of the Michigan Workforce Development Agency. Support also comes from local Michigan Works! agencies, state and local veteran's services organizations, and shelters serving homeless veterans.



The Vets to Ag program engaged the Animal Science department in partnership with Food Science and Human Nutrition. With government, industry, and MSU partners, the first class of veterans graduated in meat cutting (certificate). JBS, the major meats processor in the US, was the primary industry partner in this program. Sarah Wells, Jennifer Dominquez, Ryan Varner, and some undergraduate students and graduate students interacted with these veterans during their training program especially during the laboratory instruction.

Many of these veterans have had job offers in the industry as a result of the training, and it is hoped that this program will continue and expand.

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Riley Collins (Commerce Township, MI), Brandy Haskin (Sandusky, MI) and Nicole LeClaire (Scottville, MI) are all animal science majors at MSU that are participating in the **MSU Extension Agriculture and Agribusiness Institute summer intern program**. These students, along with 4 other students from majors across CANR, will work with Extension Educators and Specialists around the state on daily educational programming, applied research, demonstration trials, data collection, record keeping and much more. The goal of the new internship program is to train the next generation of agriculture and agribusiness professionals. Groups of Educators and Specialists will host the interns and provide each with a unique, credit-based learning experience. For more information about the MSU Extension intern program, contact Wendy Powers ([wpowers@msu.edu](mailto:wpowers@msu.edu)).

Mark your calendars for the **Growing Michigan Ag Conference**, March 5, 2014 at the Kellogg Center. The theme for this year's event is making Michigan agriculture resilient to emerging challenges. Topics include pest/pesticide/antibiotic resistance, water availability, and foreign markets. Look for registration information in



early fall. Materials from the 2013 event can be found at:  
[http://msue.anr.msu.edu/resources/growing\\_michigan\\_agriculture\\_proceedings](http://msue.anr.msu.edu/resources/growing_michigan_agriculture_proceedings)

## TEACHING INNOVATIONS

### ANS 110 Introductory Animal Science



Students at a hands on lab at the Swine farm

The Introductory Animal Science course (ANS 110) is the gateway course through which students are exposed to the disciplines of animal science. The course is taught each semester and the enrollment exceeds 250 students per year. Students select this course because of a strong desire to work with animals and frequently are not aware of the career opportunities provided by an animal science major. As they travel through the department there is a desire for more hands-on experiences on campus that reinforce the knowledge acquired in the classroom.

In Fall 2011 Dr. Gretchen Hill transformed ANS 110 from a lecture and demonstration lab format to a lecture coupled with hands-on laboratories taught at the South Campus Farm complex. With the expert help of our talented farm managers and Dr. Kent Ames, our students are actively engaged in working with animals in each of the weekly lab periods.

Handling skills, management and procedures assuring the health and well-being of the different species is interwoven with the topics addressed in the classroom each week. Students actively converse with farm managers and gain perspective on the day to day responsibilities of caring for animals. When surveyed, 87% or more of the “110” students rated species activities at the farms either very good or good. The opportunity to gain experience and have contact with the different species of farm animals has resulted in increased awareness about species and discovery of career opportunities. You can see their faces light up!

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### ANS 313 Principles of Animal Nutrition

This course is still taught each fall and typically has 168 students. The course consists of three lectures per week and a laboratory session, for part of which the students are required to work in groups to raise six broiler chickens while meeting an assigned growth goal. All diets for the birds are formulated, mixed and fed by the students. The birds are weighed and all data is recorded for inclusion in a final report. This fun and informative hands on project is one of the most talked



(Left) Birds are raised in pens with separate feeders, six birds to a pen, and tagged for identification.  
(Right) Here is a finished product! This group did a great job with their birds!

about and anticipated class experiences among our undergraduate students. The broiler project is a great learning tool for the affect nutrition has on growth using birds as a model and complements the lecture material. This year Dr. Mike VandeHaar added a class Facebook page for interactive learning and a way for students to contact each

other and work through class calculation problems together. ANS 313 is required for our undergraduates and also those applying to Veterinary School at MSU.

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### Using extensive and intensive swine production systems in interdisciplinary education at MSU

Collaborators: Dale Rozeboom, Laurie Thorp, John Biernbaum, Jeremy Moghtader, Dan Fillius, Al Snedegar, Kevin Turner, Lissy Goralnik



The “Pig Project” at the Michigan State University (MSU) South Campus Farms (Swine Farm and the Student Organic Farm) began in September of 2009, with an objective to develop an organic farming system that integrates pork production with vegetable production. The 10 acre Student Organic Farm is home to the MSU Organic Farming Training Program, whose goal is to prepare students for successful careers in organic farming. Students in this program, in Animal Science, and in other majors participate in the care and husbandry of the animals including following the animals to slaughter and processing. This year, 2013, will be the 5<sup>th</sup> year of pork production. In previous year, we’ve completed: a 43-d finishing project with 5 hogs; feeder-to-finish with 12 pigs; and single batch farrow-to-finish of 2 and 3 litters (18 and 26 pigs’ total, respectively). Growing pigs in years 1 and 2, and bred sows in years 3 and 4, were obtained from the MSU Swine Farm. Organic certification was achieved in years 3 and 4. Pork has been sold locally through a Community Supported Agriculture program (CSA),

at the MSU Meats Lab, and directly to MSU Culinary Services. One of the goals of this effort is to offer experiential learning for students with and without prior exposure to agriculture. The project has created new experiential learning opportunities for 9 classes (over 300 students) in Natural Science, Philosophy, Integrative Studies in Arts and Humanities, Animal Science, Lyman Briggs, and Community, Agriculture, Recreation and Resource Studies departments. Multiple graduate and undergraduate research projects have utilized these animals, and have led to abstract or paper presentations at 5 professional meetings. Three PhD and 2 MS programs, in Anthropology, Sociology, Philosophy, and CARRS have utilized aspects of the project. In the past two years, tours of the MSU Swine Farm, with its intensive production approach, have been provided concurrently with the pig project to allow students to experience and consider extensive and intensive approaches to pork production. Preliminary qualitative data analysis reveals that having both extensive and intensive pork production systems at MSU has enhanced learning about food and sustainability through meaningful interdisciplinary collaborations. Having both swine farms at MSU allows us to engage students that come to MSU with more varied perspectives of agriculture.

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**In summer 2012**, twenty-three undergraduate students took part in a 2 week adventure to study dairy cows and management practices in the Netherlands and Belgium. *Dairy Husbandry and Environmental Stewardship*, co-instructed by ANS faculty Elizabeth Karcher, Mike VandeHaar, and Joe Domecq, focused on animal agriculture, especially dairy farming, and how economic, environmental and social policies have affected it. The group visited the Lely factory in Maasluis, visited with faculty and students at CAH Dronten and Wageningen University, and toured private dairy farms. Students also had the opportunity to live on a Dutch dairy farm. In addition, the group engaged in the cultural and history of the Netherlands and Belgium. The program included a canal boat tour of Amsterdam, riding traditional Dutch bicycles, touring windmills, as well as a weekend in Paris. The program is offered to students on a bi-annual basis.

# CAMPUS FARMS ROUNDUP

## The MSU Beef Cattle Research & Teaching Center



Currently, the MSU Beef Cow-Calf Teaching and Research Center is conducting a research trial with approximately 35 yearling heifers which originated from the Upper Peninsula Research and Extension Center in Chatham, MI. The project is being carried out by Dr. George Smith and Dr. Richard Pursley and funding for the research project was provided through a NIH grant. The goal of these experiments is to determine whether treatment of cattle embryos with a protein named follistatin can increase ability of the embryos to establish pregnancy in foster dams. If the experiment is successful, results have potential application to infertile couples undergoing in vitro fertilization

procedures. Below are heifers that are being utilized in the study.

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**The MSU Dairy Research and Teaching Center** received the platinum milk quality award from the National Mastitis Council for 2012. The dairy was nominated by Michigan Milk Producers Association field representative Dave Brady. The MSU Dairy was one of six herds in the country to receive this award. The award was presented to Bob Kreft, herd manager, at the annual NMC meeting in San Diego January 29, 2013.

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Last fall the new **Laying Hen Research Facility** was dedicated at the **Poultry Teaching and Research Center**. It was built through the generous donations of our Michigan and Ohio egg industries along with other US producers. The facility contains state of the art feeding equipment and aviary and enriched colony housing systems. Studies conducted by MSU and Purdue faculty are currently underway.

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## Change Partners with Tradition at MSU Sheep Teaching and Research Center

While the first full year of direction under new faculty coordinator Dr. Richard Ehrhart resulted in some new and innovative changes at the MSU Sheep Teaching & Research Center, many of the traditional programs and activities that have long been the legacy of the unit remain in place.

To establish the unit as a model for modern commercial sheep production in Michigan the first order of business was to increase the size of the commercial flock on campus. From a 30 ewe black faced flock in 2006 the commercial flock currently numbers 126 white faced ewes of primarily Polypay and Dorset breeding. Another 90 replacement ewe lambs are waiting in the wings. The genetic makeup of the flock mirrors that of the larger Michigan commercial flocks and offers a moderate framed ewe that is highly prolific with the potential to lamb out of season. Accelerated lambing, parasite management, and proper use of forage resources, are being studied primarily by MSU Animal Science undergraduate students.

In addition the traditional purebred Suffolk and Dorset flocks are alive and stronger than ever. The 60 ewe Suffolk flock continues to dominate the breed as a source of terminal sire genetics. Ten of the top twelve proven sires in the Suffolk breed for Carcass Plus Index are MSU rams or sired by MSU rams, including the top six! The top



Some members of the dairy crew in front of Sparty in the stadium addition.  
(Photo courtesy of Hoard's Dairyman)



selling ram at the 2012 Center of the Nation NSIP sale was MSU 2124 demanding a \$2000.00 bid. The 35 ewe Polled Dorset flock emphasizes out of season lambing as well as traditional Dorset type. The top selling Dorset ram at the 2012 Center of the Nation NSIP sale was a MSU consignment bringing \$1300.00.

Congratulations to three of our recent students. Chris Strong of Westphalia is currently attending the University of Florida as a graduate student where he coaches the Livestock and Meat Animal Evaluation teams. At the recent All East contest his team won the Sheep Evaluation division. Christa Crawford of Ewart has accepted a graduate assistantship from the Univ. of West Virginia to do sheep research. Sarah Kennedy of Saranac was 6<sup>th</sup> high individual in Sheep judging at the 2012 North American International Livestock Exposition.

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L-R: Hannah Bollinger, Kevin Turner (Swine farm manager), Aimee Geurink, Alex Adams, Tyler Ferrier, Shai Lynn Donaldson

**The MSU Swine Teaching and Research Facility** continues to provide young people with interest in pigs, the opportunity to learn and experience a variety of research, teaching, commercial and show practices. A group of students helped to trim and fit pigs for the Luau in Lansing pig sale (April 13<sup>th</sup> 2013) at the MSU Livestock Pavilion. MSU's crew had a very nice set of pigs that went to counties all around the state! This experience as well as others, continue to make the MSU Swine farm a unique learning environment for "tomorrow's" pork industry leaders.

## FACULTY/STAFF TRANSITIONS

### **GOOD-BYE TO:**

*The Animal Science Department is saying farewell to several people as they move on to different ventures. All will be greatly missed, but our best wishes and thanks for their numerous contributions will follow wherever they go!*

**Kim Dobson, Undergraduate Secretary** retired in March 2013 after 28 years with the University.

**Ken Geuns, Livestock Youth Specialist** has accepted a position with Kent Nutrition Group as a commercial account manager.

**Dr. Mike Orth, Professor with the department** for 13 years is moving to Lubbock, TX to become Chair of the Animal Science department at Texas Technology University

**Jamie Pratt, Dept. Fiscal Officer** retired in October 2012 after 29 years at MSU

**Cody Sankey, Beef Cow-Calf Teaching & Research Center Farm Manager** accepted a position with Vita Plus in Indiana

**Al Snedegar, Swine Farm Manager** retired after 23 years in the position

**Dr. Mel Yokoyama, Professor with the department** retired after 37 years

### **WELCOME TO:**

*The Department is saying hello to some new faces and offering our best wishes and support to them.*

**Sandy Bailey** – Fiscal Officer for the Department

**Dr. Chen Chen** – Assistant Professor in the Reproductive & Development Sciences Program

**Adam Conover** – Department Livestock Academic Specialist

**Melissa Elischer** – 4-H Dairy Educator for MSU Extension, housed in Anthony Hall

**Dr. Keith Latham** – Professor working in the Reproductive & Development Sciences Program

**Tracy Rich** – Undergraduate Secretary

**Julie Thelen** – 4-H Livestock & Vet Science for MSU Extension, housed in the Anthony

**Tim Yearling** – CANR Systems Analyst

## ANS Alumni News



**We always love to hear what our alumni are doing! Please send your alumni news and any pictures that we may include in a future newsletter to Kathy Tatro ([tatro@msu.edu](mailto:tatro@msu.edu)).**

# Funding Opportunities in Animal Science

The Department of Animal Science is home to some of the best and brightest students, high quality research, and outstanding out-reach activities at Michigan State University. Your donation will help the Department continue to deliver first-rate service in these areas. Annual gifts from alumni and friends at all levels do make a difference. Please consider supporting the Department with a donation of any size.

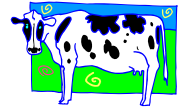
       Yes, I wish to make a contribution in support of the Department of Animal Science!

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Address \_\_\_\_\_

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Address \_\_\_\_\_



Check enclosed (made payable to *Michigan State University*) for \$ \_\_\_\_\_

Gifts may also be made using a credit card by going to the College of Agriculture & Natural Resources (CANR) secure website [http://www.canr.msu.edu/alumni\\_donors/giving\\_to\\_canr/](http://www.canr.msu.edu/alumni_donors/giving_to_canr/)

I would like my gift to support (Please circle your choice[s]):

- |   |   |
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| A105091 Animal Behavior & Welfare Judging Fund                              | A1052 Eli Lilly Merit Scholarship Fund                                      |
| A105301 Animal Science Equestrian Fund                                      | A1053 Equestrian Team   |
| A10539 Animal Science Expendable Scholarship Fund                           | A105503 Friends of the Horse Teaching and Research Center                   |
| A1050101 Animal Science Fund Acknowledging David Hawkins                    | A105581 H. Allen and Ann M. Tucker Expendable Lectureship in Animal Science |
| A105201 Animal Science Horse Program Fund                                   | A10516 Harlan Ritchie Recognition Fund                                      |
| A1051 Animal Science Judging Team   | A10506 Horse Judging Team   |
| A105096 Animal Science Spartan Livestock Open Fund                          | A10550 Horse Teaching and Research Farm                                     |
| A105202 Animal Science Teaching Fund  | A10505 J.W. & C.P. Thomas Enrichment Fellowship Fund                        |
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| A105511 Cargill Animal Science Fund   | A10507 Meats Judging Team   |
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| A10521 Dairy Youth Program  | A10523 MI Livestock Industry Scholarship Meat Science Fund                  |
| A105 Dept. of Animal Science  | A105505 Ranch House Design Scholarship Fund in Animal Science               |
| A105098 Dept. of Animal Science Dairy Challenge Fund                        | A10503 Rich Stuecken Memorial Scholarship Fund                              |
| A1055 Dept. of Animal Science Graduate Enrichment & Training Endowment Fund | A10512 Ron Nelson Judging Team Endowment Fund                               |
| A105001 Dept. of Animal Science Laying Hen Facility                         | A10557 Wilkins/Rodman Expendable Fund for Horse Teaching and Research       |
| A105099 Dept. of Animal Science Swine Fund                                  |   |
| A10500 Dept. of Poultry Science   |   |
| A10560 Domecq European Judging Team   |   |
| A10536 Draft Horse Endowment  |   |

*Any size donation is greatly appreciated!*

Please return this form to:  
**MSU Department of Animal Science**  
**Attention Kathy Tatro**  
**474 S. Shaw Lane Rm. 1290**  
**Anthony Hall**  
**East Lansing, MI 48824**

*Thank You!*