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## ASAS Award Winner, Lauren Hodge

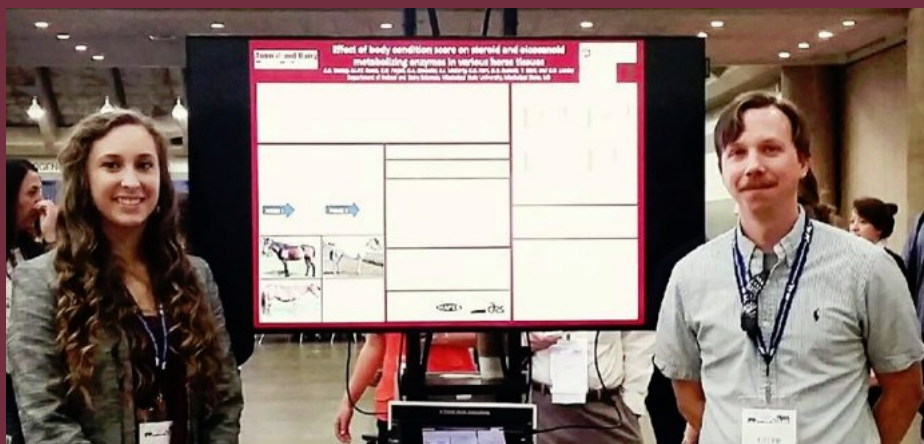
By Dr. Brian Rude



At the National ASAS meeting in Baltimore, MD earlier this month, Lauren Hodge, Ph.D. candidate, won the Josie Coverdale Equine Science Scholarship Award. She won this for her presentation of part of her Ph. D. research with the abstract titled “Effect of dietary L-arginine on blood flow dynamics, gestation length, and placental efficiency of mares.” Authored by L. B. Hodge, B. J. Rude, and C. O. Lemley.



Kalisha Yankee, Megan Owen & Keelee McCarty



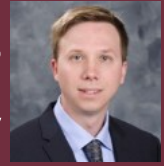
Kalisha Yankey, undergraduate, with her Research Poster and her major professor, Dr. Caleb Lemley at ASAS



Baltimore Skyline

Megan Owen, Ph. D. candidate, presenting her research at ASAS

# Undergraduate and Graduate Students Present Research at the American Society of Animal Science



By **Dr. Caleb Lemley**

Several students studying reproductive physiology in the Animal and Dairy Sciences Department presented research at the American Society of Animal Science meeting in Baltimore, MD.

Doctoral Candidate Megan Owen presented two abstracts, finalizing her dissertation research at Mississippi State. The titles of Megan's presentations were: "Examining uterine endometrial blood perfusion using a novel laser Doppler technique in Angus cows" and "Effects of biweekly administration of recombinant bovine somatotropin on steroid metabolizing enzymes during early gestation".

In addition, MS Student Keelee McCarty presented two abstracts related to her thesis work examining melatonin supplementation during mid- to late-pregnancy in beef cows. Keelee was awarded 1st place in the ASAS MS student poster competition for her abstract titled "Effect of melatonin supplementation from mid- to late- gestation on hair growth and skin temperature of beef cattle".

Undergraduate Research Assistant Kalisha Yankey presented a very well-attended poster from her ADS 4440 Research Exp Pract study, titled "Effect of body condition score on steroid and eicosanoid metabolizing enzymes in various horse tissues".

In addition, Undergraduate Research Assistant Chris McGee presented his findings from the Undergraduate Research Scholars Program titled "Charactering fetal liver and placental steroid eicosanoid metabolizing enzymes from dams supplemented with melatonin". Chris was awarded 3rd place in the ASAS undergraduate student poster competition.

One very important note to these accomplishments is the unwavering amount of team work that I personally witnessed among these students on the farm, in the laboratory, and in the offices. Each of these students participated in all facets of the research and went above and beyond when critiquing and practicing their presentations prior to the meeting. Moreover, several of our own ADS faculty served as collaborators on these projects and without their expertise and team work the above research would not have been possible. If you happen to see any of these students, please feel free to congratulate them for their accomplishments at the National level.

# North and South MS 4-H Beef and Pork Cookout Contest Results



By **Dr. Dean Jousan**

Special thanks go to Yalobusha County for hosting the North Mississippi Beef and Pork Cookout Contests. The county staff and volunteers are to be commended for their hard work in making this event a success. We had 30 beef contestants and 10 pork contestants. Thanks to the Mississippi Beef Council, Mississippi CattleWomen's Association and Mississippi State University Extension for sponsoring the Beef Cookout Contest.



## **Beef Cookout Contests**

### Prestigious Steak Class

Junior Division (5 contestants)

- 1st Michaela Chunn, Lowndes County
- 2nd Allen Mason, Marshall County
- 3rd James Chow, Washington County

Senior Division (1 contestant)

- 1st Tyler Branch, Holmes County

### Less Expensive Steak Class

Junior Division (5 contestants)

- 1st Luke Moore, Lowndes County
- 2nd Andy Redwine, Yalobusha County
- 3rd R.J. Rice, Oktibbeha County

Senior Division (3 contestants)

- 1st Reoca Rice, Oktibbeha County
- 2nd Davian Powell, Holmes County
- 3rd Bailey Davis, Lafayette County

### Specialty Class

Junior Division (3 contestants)

- 1st Kwentrez Johnson, Noxubee County
- 2nd Trinity Shelton, Clay County
- 3rd Jordan Brooks, Holmes County

Senior Division (0 contestants)

No entries

### Hamburger/Sandwich Class

Junior Division (10 contestants)

- 1st Dalton Burney, Yalobusha County
- 2nd Camden Shurden, Oktibbeha County
- 3rd Robert Jones, Marshall County

Senior Division (3 contestants)

- 1st Jake Harrison, Yalobusha County
- 2nd Brianna Buggs, Washington County
- 3rd John Bellipanni, Sunflower County

**Overall Beef Cookout Champion – Luke Moore, Lowndes County**

**Thanks to the Mississippi Pork Producers Association and Mississippi State University Extension for sponsoring the Pork Cookout Contest.**



## Pork Cookout Contest

Junior Division (6 contestants)

1st Jaquezz Shelton, Clay County  
County

2nd Lee Haire, DeSoto County  
County

3rd Sarah "Faith" Carter, Noxubee County

Senior Division (4 contestants)

1st Larry Johnson, Noxubee

2nd Preston Harper, Lowndes

3rd Xia Evans, Humphreys County



### Overall Pork Cookout Champion – Jaquezz Shelton, Clay County

## SOUTH MS BEEF & PORK COOKOUT CONTESTS

The Forrest County Extension staff did a great job hosting the South Mississippi Beef and Pork Cookout Contests. I want to thank the county staff and volunteers for the hard work that they put forth for this event to be successful. We had 22 beef contestants and 12 pork contestants. Thanks to the **Mississippi Beef Council, Mississippi Cattlewomen's Association and Mississippi State University Extension** for sponsoring the Beef Cookout Contest.

### Beef Cookout Contest

#### Prestigious Steak Class

Junior Division (5 contestants)

1st Mackenzie Johnson, Copiah County

2nd Cadence Parks, Harrison County

3rd Jonathan Baker, Stone County

Senior Division (1 contestant)

1st Parker Johnson, Copiah County

#### Less Expensive Steak Class

Junior Division (2 contestants)

1st Emma Thaxton, Copiah County

2nd Ember Mixon, Clarke County

Senior Division (0 contestants)

No entries

#### Specialty Class

Junior Division (3 contestants)

1st Allie Mosley, Clarke County

2nd Hannah Morton, Harrison County

3rd Tabitha Mixon, Clarke County

Senior Division (2 contestants)

1st Crystal Hinton, Harrison County

2nd Craig Hinton, Harrison County

#### Hamburger/Sandwich Class

Junior Division (6 contestants)

1st David Mixon, Clarke County

2nd Reslyn Ramsey, Kemper County

3rd Elliott Turbyfill, Wayne County

Senior Division (3 contestants)

1st Cedric Jones, Kemper County

2nd Xavier Pittman, Walthall County

3rd Jared Smith, Warren County

### **Overall Beef Cookout Champion – Allie Mosley, Clarke County**

**Thanks to the Mississippi Pork Producers Association and Mississippi State University Extension for sponsoring the Pork Cookout Contest.**

### Pork Cookout Contest

Junior Division (8 contestants)

1st Abbye Buchanan, Rankin County

2nd Brianna Nelson, Forrest County

3rd Reagan Portis, Madison County

Senior Division (4 contestants)

1st William Fortenberry, Rankin County

2nd Colton Albritton, Clarke County

3rd Anna Grace Carter, Rankin County

### **Overall Pork Cookout Champion – Abbye Buchanan, Rankin County**

# Animal Agriculture in China: Poultry Industries

— A Study Abroad Course (ADS 4990) Report  
by Alex McCafferty and Shengfa Liao



On May 11, 2017, Dr. Lujiang Qu, Professor of Poultry Genetics, Breeding and Reproduction in China Agricultural University (Beijing, China) delivered a lecture over the poultry industries in China to the students of a study abroad ADS 4990 class of MSU. In the lecture, Dr. Qu first explained the foundation of the laying industry in China and the development progress of their own breeds. He then briefly went over the boiler industry in China and how their government is pushing for standardization in production practice. At the end he also mentioned that the meat and eggs of waterfowl are also fairly prevalent in China. The overall goal of the poultry industries is to produce safe poultry products with high quality for the consumer.

China is the largest producer of eggs in the world with the annual yield reaching nearly 30 million tons. The commercial settings of the laying industry in China is very similar to that of the United States. 90% eggs in China



are produced from caged hens. Studies have shown that hens raised in cages are more efficient and have lower mortality rates than that raised on free range. From consumer standpoints, there exist some differences between China and the United States in product choices. Chinese people prefer brown-color eggs over white-color eggs. In a local market or store it is less likely to find white eggs. Besides brown and white eggs there are also pink and blue eggs. The reason behind choosing color eggs is that Chinese believe that brown eggs are more flavorful and have more nutrients. Another difference is that not all layers in China are of white feather. Chinese people also believe that the meat from a color bird has more flavor than from a white bird. When layers are culled or retired, they will be sold to the market for meat/soup consumption. Chinese people are more inclined to

buy color birds. The age of culled layers is not a concern because most consumers believe that older hens are better for human health than young hens are. Women usually eat and drink a lot of old-hen meat and soup after giving birth.

There are various breeds of chickens for egg production. White Leghorn is the best producer of eggs, and most commercial layers are crossbreds from White Leghorns. Rhode Island Red is also used as layers, but in most cases it is raised for dual purpose



(i.e., for eggs and meat). White Leghorn has yellow skin but produces white eggs, while Rhode Island Red has yellow skin but produces brown eggs. 50% of the layer breeds in China were imported from Hy-Line International, a poultry breeding company headquartered in Des Moines, Iowa.

China Agricultural University have also developed a layer breed of their own, called CAU-3, through amplifying a draft gene on X-chromosome. This draft gene induced a better layer conversion ratio and smaller eggs. The yolk of CAU-3 eggs remains the same size as that of the conventional eggs but the white is less in quantity. The CAU-3 eggs are preferred because the yolk holds most of the flavor.

China is the second largest producer of broilers after the US in the world with the annual meat yield reaching 18.3 million tons. The commercial settings for broiler production are also similar to those in the United States. The most common breeds used are Arbor Acres and Ross 308, with some Cobb 500 and Avian. A well-known local breed is Three-Yellow Chicken. One newly developed breed is a cross between White Cornish as the male line and White Plymouth Rock as the female line. Most broilers are raised on the ground in house, but some are raised in cages. Broilers are raised to market weight and are then sold in an open market or to a packer. As previously stated for layers, most Chinese people prefer color over white birds and believe that the color birds have more flavor. Many consumers prefer shopping in an open market because they can see the live birds before they are going to buy. The more colorful a bird is the higher the price will be.



The poultry industry of China has not always been advanced. In the past, many poultry farms were very close to each other in distance. This led to an easy spread of disease. Even today, in some backyard operations a biosecurity measure is still not accounted for. Small farms usually have poorly trained managers, use cheap feed, and have lower production efficiency. Today's government, however, is pushing for farms to become standardized to ensure the quality of the eggs and the meat they are producing. Nonetheless, there is still a quality control issue because most eggs are still sold in open markets without any type of labeling or branding, but a major goal of the poultry industries in

China is to guarantee safe products for the consumer.

# RESEARCH NEWS

By Dr. Erdogan Memili

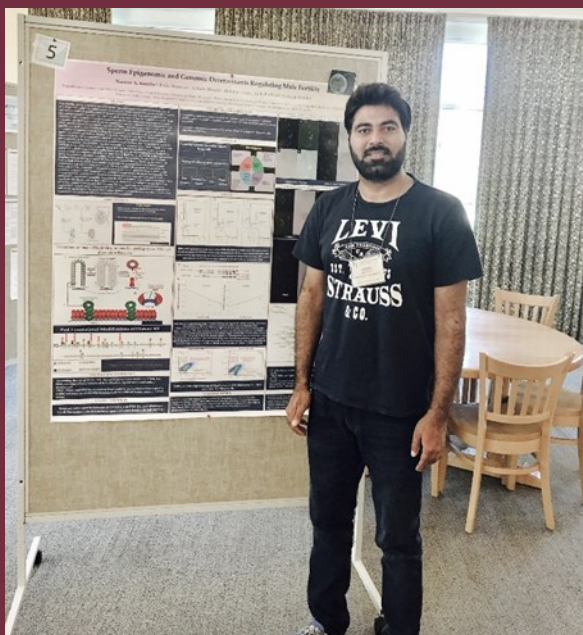
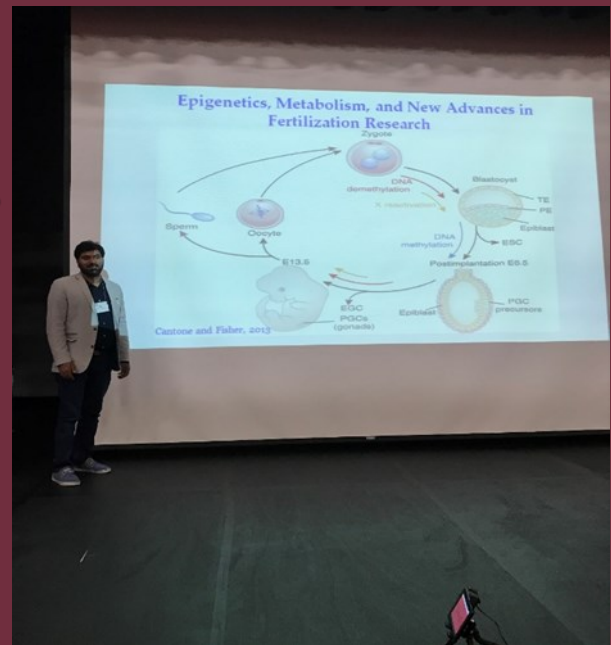


## Kutchy leads discussion and presents research at the Gordon Research Conferences

Naseer A. Kutchy, a Ph.D. candidate in the Department of Animal and Dairy Sciences presented his poster “Sperm epigenomic and genomic determinants regulating male fertility” at the Gordon Research Seminar and conference in Holderness, New Hampshire (<https://www.grc.org/programs.aspx?id=15602>). In addition, he has served as the discussion leader and moderated the session of Epigenetics, Metabolism, and New Advances in Fertilization Research and moderated the discussion

In addition, Naseer presented his poster at the GRC on Fertilization and Activation of Development (<https://www.grc.org/programs.aspx?id=11297>) which was held in the same location as above between July 15 and 21, 2017.

Gordon research seminar (GRS) is a scientific meeting where postdocs and graduate students present their research. All the sessions are moderated by postdocs and graduate students and speakers are also postdocs and graduate students.



Gordon research conference (GRC) is among the highest quality scientific meetings that focus on fundamental science of many diverse areas (<https://www.grc.org>).

Funded through a competitive Ph.D. fellowship from the Indian Council for Agricultural Research (ICAR), Naseer is pursuing his dissertation research “Sperm Genetic and Epigenetic Mechanisms Regulating Bull Fertility” with guidance from his graduate advisor and mentor, Dr. Memili.



# Upcoming Extension Events

## Beef Extension – Dr. Brandi Karisch Cobie Rutherford



- Stockmanship and Stewardship Regional Event, August 3-4, Starkville MS
- Homeplace Producers Feeder Calf Board Sale on August 7, Hattiesburg, MS

## Equine Events – Dr. Clay Cavinder



- Upcoming Programs are online at: <http://extension.msstate.edu/agriculture/livestock/equine/upcoming-programs>
- For more info, contact Dr. Cavinder at [clay.cavinder@msstate.edu](mailto:clay.cavinder@msstate.edu)

## 4-H Events – Dr. Dean Jousan



- Newton State Fall Dairy Show, July 28
- Southern Regional 4-H Horse Championship, August 2-6, Perry, GA
- For publications and upcoming events, go to: <http://extension.msstate.edu/4-h> or contact Dr. Dean Jousan at [dj230@msstate.edu](mailto:dj230@msstate.edu)

## Dairy Events – Dr. Amanda Stone



- For publications, go to <https://extension.msstate.edu/dairy> or contact Dr. Amanda Stone at 662-325-8873.



## 2017 Refereed Publications:

**Lemley, Caleb O.** Investigating reproductive organ blood flow and blood perfusion to ensure healthy offspring. *Animal Frontiers*. doi:10.2527/af.2017-0124.

Keomanivong, F. E., L. E. Camacho, **C. O. Lemley**, E. A. Kuemper, R. D. Yunusova, P. P. Borowicz, J. D. Kirsch, K. A. Vonnahme, J. S. Caton and K. C. Swanson. Effects of realimentation after nutrient restriction during mid- to late gestation on pancreatic digestive enzymes, serum insulin and glucose levels, and insulin-containing cell cluster morphology. *Journal of Animal Physiology and Animal Nutrition*. 101 (2017) 589–604. DOI: 10.1111/jpn.12480.

Menezes, E.B., R.V. de Oliveira, M.F. van Tilburg, E.A. Barbosa, N.V. Nascimento, A.L.M.C.S. Velho, F.B. Moreno, R.A. Moreira, A.C.O. Monteiro-Moreira, G.M.C. Carvalho, A.F. Ramos, **E. Memili**, A.A. Moura. Proteomic analysis of seminal plasma from locally-adapted “Curraleiro Pé-Duro bulls” (*Bos taurus*): identifying biomarkers involved in sperm physiology in endangered animals for conservation of biodiversity. *Animal Reproduction Science*. <http://dx.doi.org/10.1016/j.anireprosci.2017.05.014>.

**Cavinder, C. A.**, A. Sear, R. Valdez, L. White. Utilization of Social Media as a Marketing Tool for Equine Businesses: An Exploratory Study. *North American Colleges and Teachers of Agriculture Journal*. June 2017, Vol 61(2).

Gastal, G. D. A., A. Hamilton, B. G. Alves, S. G. S. de Tarso, **J. M. Feugang**, G. A. Apgar, C. K. Nielsen, E. L. Gastal, W. J. Banz. Ovarian features in white-tailed deer (*Odocoileus virginianus*) fawns and does. *PLOS ONE*. 12(5):30177357. <https://doi.org/10.1371/journal.pone.0177357>.

Aguiar, F.L.N., G.D.A. Gastal, G.M. Ishak, M.O. Gastal, D.I.A. Teixeira, J.R. Figueiredo, E.L. Gastal, **J.M. Feugang**. Effects of FSH addition to an enriched medium containing insulin and EGF after long-term culture on functionality of equine ovarian biopsy tissue. *Theriogenology* 99 (2017) 124-133.

**Feugang, Jean M.** Novel agents for sperm purification, sorting and imaging. *Molecular Reproduction Development*. 2017. 9999:1-10. DOI: 10.1002/mrd.22831.

Borchers, M. R., Y. M. Chang, K. L. Proudfoot, B. A. Wadsworth, **A. E. Stone**, and J. M. Bewley. Machine-learning-based calving prediction from activity, lying, and ruminating behaviors in dairy cattle. *Journal of Dairy Sciences*, Vol.100:1-11. 2017. <https://doi.org/10.3168/jds.2016-11526>.

**Lemley, C. O.** and K. A. Vonnahme. PHYSIOLOGY AND ENDOCRINOLOGY SYMPOSIUM: Alterations in uteroplacental hemodynamics during melatonin supplementation in sheep and cattle. *Journal of Animal Science* 2017.95:2211-2221. doi:10.2527/jas2016.1151.

Gastal, G.D.A., F.L.N. Aguiar, B.G. Alves, K.A. Alves, S.G.S. de Tarso, G.M. Ishak, **C.A. Cavinder**, **J.M. Feugang**, E.L. Gastal. Equine ovarian tissue viability after cryopreservation and in vitro Culture. *Theriogenology* 97 (2017) 139-147.

- Maki, C R, S Allen, M Wang, SH Ward, **BJ Rude**, HR Bailey, RB Harvey and TD Phillips. Calcium Montmorillonite Clay for the Reduction of Aflatoxin Residues in Milk and Dairy Products. *Journal of Dairy and Veterinary Sciences*. 2017; 2\*3): 555587.
- Regmi, N., T. Wang, **M. A. Crenshaw, B. J. Rude, S. F. Liao**. Effects of dietary lysine levels on the concentrations of selected nutrient metabolites in blood plasma of late-stage finishing pigs. *Journal of Animal Physiology and Animal Nutrition*. 2017; 1-7. DOI: 10.1111/jpn.12714.
- Wang, Taiji, **Jean M. Feugang, Mark A. Crenshaw**, Naresh Regmi, **John R. Blanton Jr.** and **Shengfa F. Liao**. A Systems Biology Approach Using Transcriptomic Data Reveals Genes and Pathways in Porcine Skeletal Muscle Affected by Dietary Lysine. *International Journal of Molecular Sciences* (2017) 18, 885.
- Cain, Amanda J., **Caleb O. Lemley**, F. Kevin Walters, David L. Christiansen, E. Heath King, Richard M. Hopper. Pre-breeding beef heifer management and season affect mid to late gestation uterine artery hemodynamics. *Theriogenology* 87 (2017) 9–15.
- Jones, Barbara W., **Amanda E. Stone**, Connie L. Wood, Kristen J. McQuerry, Joey D. Clark, Denise L. Ray, and Jeffrey M. Bewley, PAS. Case Study: Characterization of milk yield, lying and rumination behavior, gait, cleanliness, and lesions between 2 different freestall bases. *The Professional Animal Scientist* 33:140–149. <https://doi.org/10.15232/pas.2016-01548>.
- Stone, A. E.**, B. W. Jones, C. A. Becker, and J. M. Bewley. 2017. Influence of breed, milk yield, and temperature-humidity index on dairy cow lying time, neck activity, reticulorumen temperature, and rumination behavior. *Journal of Dairy Sciences* 100:1–9. <https://doi.org/10.3168/jds.2016-11607>.
- Hodge, Lauren B., **Brian J. Rude, Thu N. Dinh, Caleb O. Lemley**. Effect of u-3 Fatty Acid Supplementation to Gestating and Lactating Mares: On Milk IgG, Mare and Foal Blood Concentrations of IgG, Insulin and Glucose, Placental Efficiency, and Fatty Acid Composition of Milk and Serum From Mares and Foals. *Journal of Equine Veterinary Science* 51 (2017) 70–78.
- Littlejohn, B. P., M. C. Roberts, M. N. Bedenbaugh, A. W. Lewis, D. A. Neuendorff, D. G. Riley, J. A. Carroll, **R. C. Vann**, M. Amstalden, R. D. Randel, T. H. Welsh, Jr. (2017). Evaluation of the influence of prenatal transportation stress on GnRH-stimulated luteinizing hormone and testosterone secretion in sexually mature Brahman Bulls. *Journal of Animal Science* 95, 129-138. [www.animalsciencepublications.org/publications/jas](http://www.animalsciencepublications.org/publications/jas).
- Gastal, G D A , B G Alves, K A Alves, M E M Souza, A D Vieira, A S Varela Jr, J R Figueiredo, **J M Feugang**, T Lucia Jr and E L Gastal. Ovarian fragment sizes affect viability and morphology of preantral follicles during storage at 4°C. *Reproduction*, (2017) 153, 577-587.

## 2017 Book Chapters:

- Greene, Jonathan M. and **Peter L. Ryan**. L-Arginine in the Uterus and Placenta and During Gestation in Mammals. In *L-Arginine in Clinical Nutrition, Nutrition and Health*, Chapter 22. 2017. V.B. Patel et al. (eds.). DOI 10.1007/978-3-319-26009-9\_22.
- Stone, A. E.** Precision dairy monitoring technology implementation opportunities and challenges. In *Large Dairy Herd Management*, 3rd Edition. (Edited by David K. Beede).



Wang, Taiji, **M. A. Crenshaw**, M. S. Hasan, G. Wu and **S. F. Liao**. 2017. Effects of dietary lysine levels on the plasma concentrations of growth-related hormones in late-stage finishing pigs. In T. Asao and M. Asaduzzaman. eds. *Amino Acid - New Insights and Roles in Plant and Animal*. Chapter 13. pp. 259-271. InTech, Rijeka, Croatia. DOI: 10.5772/intechopen.68545.