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2013 CCE Summer Internships

CATEGORY ARCHIVES: CONNECTING FEEDER CATTLE AND CARCASS MEASUREMENTS TO RETAIL VALUE OF BEEF

THE END… (and some stuff from before then that I never got around to posting before)

Posted on **September 2, 2013** by **meh325@cornell.edu**

So if there's one thing I learned this summer, it's that I should definitely not take up blogging as a career… I'm neither organized, nor funny enough to be any good at this sort of thing in the real world! That being said, I'm going to post one final update summarizing the last portion of my internship. I apologize in advance for the lengthy nature of this post. I was keeping track and writing lots of stuff down as I went along, but I was without internet access for several weeks so that made posting to the blog pretty tricky! Here's the recap of my summer from Week 10 onwards:

Week 10:

I've been quite busy lately and got a little bit behind on my blog posts…. Luckily, I'll have some down-time this week while I'm sitting with my project at Empire Farm Days so I can catch up! Don't worry though, I kept track of everything I've done so you won't miss a beat despite the fact that I haven't posted in a while J

On Monday of week 10, I met up with Dr. Baker to touch base on what I'd been working on while he was away. We discussed work I'd done on the spreadsheet and what we hope to do during the remaining few weeks of summer. The result of this meeting was a fresh to-do list of tasks for me to accomplish.

Tuesday, July 23 was the Beef Quality Assurance workshop in Allegheny County that I was helping Lynn Bliven plan throughout the summer. Although I hardly contributed to the work that went into planning, organizing and running the event, it was a huge success! BQA is a program that educates producers on how to safely care for their animals so they can provide products that are guaranteed to be safe and ethically produced. The program teaches producers the importance of proper handling, vaccination techniques and management. Beef producers can gain

two levels of certification through the classroom training, chute-side training and taking a small test on basic BQA principles. Completion of these requirements earns Level 1 producer certification, while the addition of a signed Veterinarian-Client-Patient Relationship form earns Level 2 certification.

This particular session was held at Rushford Land and Cattle Company in Rushford, NY. The Ellis family hosted the event at their facility and was gracious enough to also provide those present with a delicious beef BBQ and assortment of homemade salads and pies for dinner. There were around 20 producers present who all completed the classroom training and passed the test before heading outside to complete the chute-side training. At the chute, producers were taught more about proper handling techniques and were also required to each give one subcutaneous injection.

This was my first time attending a BQA workshop and I actually completed the training to earn my certification along with the producers. It was a really neat experience to spend time with so many producers who are looking to learn more about how to produce high-quality products and better manage their cattle.

The rest of the week was spent working on my display for Empire Farm Days and doing more data analysis with the spreadsheet and our newest regression equation. I also continued playing phone tag with the producers whose farms we are trying to visit – it's definitely the time of year where people are more interested in baling hay than answering phone calls from pesky interns!

Week 11:

This was another carcass evaluation week. On Monday I drove down to Wilson's and met up with Dr. Baker and Lynn to grade carcasses. Dr. Baker and I also had a good chat with Chris Wilson about the different regression equations we're using for the project and how we can interpret them. Ultimately, we decided to use the simplest equation, because it was also highly accurate and provided consistent results. With this equation, we can explain the factors that affect the value of a carcass and how they impact that value.

After this discussion, I was able to finish updating the spreadsheet and continue working on my display for Empire Farm Days by inputting the new equation. I also got to make my first of many trips to Seneca Falls to help Dr. Baker set up the cattle handling exhibit at Empire Farm Days. This was a super fun morning of hauling around gates and fence panels to construct a masterpiece! We ended up with a holding pen that led to an alleyway. Off of

this alleyway were 3 different types of chutes and handling set-ups to show off to the visitors. Each of the 3 chutes was brought in from a dealer who was selling that product at the show, but the part leading up to each chute was set up by us. The 3 different operations we had were a traditional chute, a bud box and a tub. I'll work on attaching images explaining each of these to the bottom of this post.

Week 12:

This was the week of Empire Farm Days. For the 3 days of the show, I sat at the table by my display and talked with members of the industry and public about the research project and about the processes involved with carcass evaluation. Dr. Baker had 6 cattle at the show for use in his cattle handling demonstration. This demo was given once each day, and seemed to be a huge success. The stands were packed each day and the demonstrations went very well. A representative from each of the 3 chute dealers was present to talk about each specific chute, but Dr. Baker and some other industry professionals spoke about space requirements, handling procedures and the 3 set ups of the chute, bud box and tub. Speaking with consumers and those who don't know much about agriculture is always something I enjoy doing, so I really enjoyed being about to help share my knowledge and experiences with the public through answering questions by my display and helping pass out literature during the handling demonstrations.

Finishing up:

After this point, we had another day of carcass data collection at Wilsons — this also means I had another afternoon of data entry and spreadsheet updating! Following these adventures, things started winding down for the summer. The exception to this was that I was still working to get in contact with the farmers involved in the Wilson Beef project to schedule visits to look at their farms and cattle. Luckily, we were eventually able to set up meetings with all 3 of the outside farms. This was probably one of my favorite experiences of the summer because I really enjoyed being able to visit farms and speak with the producers about the project, their management practices and their animals. These visits and the conversations we had really tie everything else together since we collected the results of the survey we had sent out earlier in the summer. I thoroughly enjoyed having the opportunity to meet and talk with the wonderful farmers involved in the study and am really excited to hear where it goes in the coming months.

Overall, my internship experience this summer was AMAZING! I learned soooooo much about beef cattle, meat quality, the beef industry and Cornell's cooperative extension program and I'm incredibly grateful to have had this opportunity. I'm not really sure who (if anybody!) will be reading this blog, but if there's any prospective interns out there looking for a great experience for summer 2014, I can't even express how great this opportunity is – so you better take it! To anyone who I may have met this summer on my travels, I consider myself lucky to have had the privilege of meeting and/or working with you. To the Chris and Bernadette Wilson and the other farmers involved in the research project, I'll definitely be in touch with Dr. Baker about the progress of this study because I'm hooked

now – can't wait to hear all about the progress that's being made in the coming months and I wish you all the best of luck moving forward! And last, but certainly not least, to Dr. Baker: thank you so much for providing me with this opportunity and for being such a great mentor this summer. I learned more than I ever could have imagined and consider myself blessed to have had the chance to participate in this internship with you. I really appreciate your endless patience and willingness to teach me new things. THANK YOU so much for a great summer!

Posted in **Connecting Feeder Cattle and Carcass Measurements to Retail Value of Beef**

Week 9: Carcasses, data and phone calls

Posted on **July 25, 2013** by **meh325@cornell.edu**

During the week of July 15-19, Dr. Baker was on vacation so I was left with a "to do" list. Apart from going to Wilson Beef Farms to collect data on Tuesday, I spent most of my time this week holed up in the library and taking advantage of the air conditioning while I worked.

Lynn and I collected data on Tuesday this week, instead of Monday. Because of this, there were 6 extra carcasses in the freezer. Although we didn't have to collect extra data from them (we will get them on our next trip to the facility), the added carcasses made for some up-close and personal encounters with the meat while we were working to collect data. We had to squeeze between the carcasses to obtain measurements and try not to trip ourselves on the forelimbs that hung down — extreme carcass evaluations!

Throughout the rest of the week, I worked to contact the feeder cattle producers who sell their animals to the Wilsons. We hope to schedule visits to these 4 farms sometime during the last few weeks of the summer to view their facilities and learn about the different management styles. As it turns out, these farmers are really busy this time of year, so contacting and scheduling has been a bit of a struggle — its still a work in progress.

Along with making countless phone calls, I also spent a lot of quality time with the data spreadsheet during this week. I worked on inputting the newest regression equation, and sorting and analyzing other portions of the data. Primarily, I was looking for relationships between the weight of certain cuts of meat and the value of the animal. We were interested in looking at this primarily because of a theory Chris has about certain cutouts, meat quality and his profitability. When a steak is misshapen or has a large chunk of fat in it, is must be cut and reshaped before it can be packaged. This is more from an aesthetic standpoint, since the meat wouldn't actually taste different; however, consumers often base their purchasing decisions off of how good the steak looks within the package. Thus, it's important to have consistently sized and shaped steaks. According to Chris, when he comes across a steak that won't look right in a package or will require excessive trimming, he doesn't make steaks out of it and adds the meat to another cut instead. For example, if a porterhouse steak doesn't look like it will turn out well, he doesn't cut out those steaks and instead uses that meat for tenderloin. Although the tenderloin is a more pricey cut, there is less of it. As a result, the profitability of this carcass would decrease because of the oddities in the porterhouse region. I

worked to sort and analyze the data to verify Chris' assumptions and determine if this really is the case. Currently, we're waiting to speak with Chris so that we can verify a few things with him before running the complex statistical analysis on the data set.

In addition to this analysis, I worked on sorting a few other portions of the data sheet. I also began to compute the finished body weights of the animals we obtained hip height measurements from the previous week. Using these estimations, we hope to help Chris better predict when to slaughter his animals in order to maximize both quality and profitability.

Posted in **Connecting Feeder Cattle and Carcass Measurements to Retail Value of Beef**

Weeks 6-8: Spreadsheets!

Posted on **July 14, 2013** by **meh325@cornell.edu**

The past few weeks have been chuck-full of spreadsheet work and library research. During week 6, I worked a lot on inputting and matching feeder weights to the carcass data that has been collected throughout the past several months. I also played around with some other parts of the spreadsheet and set up the data to run a new statistical analysis. The statistical analyses are used to obtain the regression equations that we use to predict carcass value. Before this, the last analysis was done in December, using only about 6 months of data. This time, we had nearly double the amount of data, which means that that the equation should be more accurate. The stats program we used, SAS, is really cool because it checks for interactions between all of the variables and then filters them to include only those which are statistically significant in the regression equation. Statistics was my absolute favorite class in high school, so this program fascinates me. Computers are so cool sometimes! In the end, we got an equation that was somewhat confusing, given the interactions that SAS deemed to be statistically significant. The regression equation shows whether a variable or interaction has a positive or negative impact on the value and how great that impact is, based on the sign and coefficient. Some of these factors were intuitive. For example, carcass weight was a fairly large and positive impact on the value of the carcass. This makes sense because the large the carcass, the more overall meat and the more overall value in the carcass. However, some of the other factors at play were a bit confusing. We decided to input the new formula to the spreadsheet and then do some more research on the subject.

During this week we also made a trip to the T&R center to look at the remaining Value Discovery cattle. Dr. Baker

decided that most of the animals were ready to be sent to slaughter, and those who weren't would go anyway. The project had been going on for quite a while, and it became apparent that some of the animals were never going to finish to the level desired. For practice, I assigned Body Condition Scores to all of the animals we were evaluating. Body Condition Scores are a way that producers and professionals standardize the level of "fatness" of an animal. Different species and types of animals have different scales that are used for BCS. For example, beef cattle are scored on a scale of 1-10, while dairy cattle are scored on a scale of 1-5. Ideally, beef cattle should be above 7.5 when they are sent to slaughter. The lowest BCS we sent that day was a 5. This animal was a Holstein (a breed of dairy cow) steer that had been given to an Angus mother to foster when she lost her newborn calf. Because of his genetics, this steer would never have reached the level of "beefiness" seen in many of his Angus counterparts. Dairy cattle are much leaner than beef cattle, due to their different role in life.

I also worked to finalize the letter and survey to be sent to the breeders of the cattle being used in the Wilson beef project. This was to prepare them for the farm visits we will be scheduling soon and to let them know what kind of records we are requesting for our research.

During Week 7, I was away. No internship work accomplished then. 🙂

Last week, I worked on researching more about the various confusing factors of our new regression equation. Dr. Baker also did some research on this topic and in the end, we were more confused than ever! All of this confusion led us to reach out to Dr. Jonathan Campbell, who is a newly hired meat science specialist at Penn State University. Dr. Campbell and I have been communicating via email about the project. In the near future, Dr. Baker hopes to plan a trip to Penn State for us to meet Dr. Campbell and present him with the details of our project.

Much of this week was spent updating the spreadsheet, matching more feeder weights to their respective carcass data, and sorting and analyzing the data we've collected.

On Thursday, Dr. Baker and I went to the Wilson's farm in Canaseraga to measure hip heights on the cattle. Knowing how tall an animal is at a given age, you can predict how much they will weigh when they are ready for slaughter. Knowing this, along with the energy content of the diet, we can predict what day the animals will be ready for slaughter. We hope to be able to use this information to help Chris prevent a bottleneck from occurring, where he has more animals ready than his facility can handle on a given week. We are in the process of setting up farm visits to collect birthdates and health records on the cattle, so we will soon be able to match up all of this information to predict finish dates for the animals at the Wilson's farm.

After measuring the animals, Dr. Baker and I went back to the retail store and sat down to talk with Chris about the project, our confusions, and where everything was headed. This was a really valuable talk because it helped us

refocus and set up a plan for the rest of the summer. Speaking with Chris is always helpful because he provides another expert opinion (Dr. Baker being the only other expert – not myself!) and helps us look at the full picture. After this meeting, we decided that it would be more important to have an equation that makes sense to us, and one that we understand and can work to improve. Because of this, we ran a more simple analysis that eliminated some variable that were in duplicate. The end regression makes much more sense and includes variables that can be easily understood. This will serve as the basis for improvement as we go forward; hopefully we can use this to help the breeders make informed decisions about their genetics and management practices, which will ultimately make everyone involved much more profitable.

Posted in **Connecting Feeder Cattle and Carcass Measurements to Retail Value of Beef**

Week 5: Breeding replacement heifers and — you guessed it! — MORE carcasses

Posted on **June 26, 2013** by **meh325@cornell.edu**

I began the 5th week of my summer internship by traveling to Wilson's Beef Farms in Canaseraga to evaluate carcasses bright and early Monday morning. This week, there were 13 carcasses to be evaluated instead of the usual 12 (as you may remember from my previous posts, Wilson's generally kills 6 each week and we grade carcasses 2 weeks at a time). This is because Chris, who makes many of the cattle purchasing and killing decisions, wants to prevent certain cattle from becoming over-conditioned before they can be slaughtered. Conditioning refers to the amount of finish, or fat, an animal has. Thus, the term "over-conditioning" indicates that the animal is overly fat. From a profitability standpoint, it's important that cattle be slaughtered at precisely the correct time to maximize income. Once a given animal reaches a certain size and has a certain level of muscling, no amount of feed will enable it to get bigger or more meaty. At this point, however, the cow is still consuming a diet formulated for optimum growth, so all of this excess energy is deposited as body fat, rather than muscle. When this occurs, a producer is essentially paying for feed that can ultimately decrease the quality of the finished product. Currently, the Wilsons are experiencing a surplus of cattle ready for slaughter and have occasionally been increasing the number killed to offset the incidence of over-conditioning.

Evaluating carcasses this week was slightly different than the first two time because Dr. Baker was unable to come along. Thankfully, Lynn Bliven from Allegheny County CCE was there, so I wasn't flying solo on the carcass evaluations! Lynn and I each graded the carcasses separately, then convened outside of the freezer to compare our values. Since I'm still getting the hang of making all of the measurements and assigning marbling scores, we had several discrepancies that needed to be addressed and had to head back into the freezer… Eventually, we obtained values for each measurement of each carcass that we agreed upon.

Later in the week, we returned to the T&R Center to remove the CIDR devices from the heifers. The CIDRs (CIDR = Controlled Internal Drug Release) are devices that are used as part of the estrous synchronization protocol. The

devices are inserted through the vagina and cervix and into the uterus using a special “gun”. When the device is in place, a small plastic string sticks out of the female’s vulva to make removal simple. Unfortunately, this also makes it possible for the cows to remove their own CIDRs. This is more common in heifers housed together because they are more young and curious…. They’re probably something like: “Hey, why do you have a blue string sticking out of there?!?” right before they use their mouths to pull it them out of each other. To prevent this problem, the strings can be trimmed. The staff at the T&R center trimmed them for us a few days after we put the CIDRs in because a few curious heifers pulled them out of each other. Hopefully, the devices were back in place before too long and they were still able to do their job! If you’re interested in learning more about CIDRs and how they work: http://en.wikipedia.org/wiki/Controlled_Internal_Drug_Release_(CIDR

With the synchronization plan we used, the heifers needed to be inseminated 56 hours after the CIDRs were removed. An AI technician from the bull stud company we were using came to do the inseminations. We used semen from the bulls I selected a few weeks ago, one was a purebred Angus and the other was a Simmental/Angus cross. To determine which heifer should be bred with which bull, we combined our knowledge of each invididual’s breed composition, along with the pelvic measurements we obtained the week before. Using the pelvis measurements, we calculated the approximate size a calf could be before the heifer would have difficulty giving birth. Heifers who were able to calf larger babies were bred to the SimAngus bull (because Simmentals are larger than Angus cattle), while heifers not able to carry as large of calves were bred to the full-Angus bull.

My other main project during this week was to input data from Wilsons. I was given lists of the feeder weights of cattle they purchased from each producer, along with sheets that listed the ear tag numbers from the cattle slaughtered each week. My job was to go through and match up the carcass data with the feeder weights to have a better idea of how much each animal actually cost to produce. Now that the sheet is set up, this will be easier to keep up with in the future, allowing us to keep better information and hopefully obtain more accurate results from the research.

On Friday, I went to Geneva to attend a Beef Quality Assurance committee meeting. Members of the BQA committee include Dr. Baker and Carol Gillis from the NY Beef Check-off program, who I met during my first week on the job when we toured New Penn Farms. Other members of the committee are veterinarians, extension agents and industry experts. BQA is a program that helps teach producers how to safely and humanely handle and care for their animals in a way that maximizes food safety and quality. If producers go through the program, they earn certification that can then help them obtain a higher market price for their animals. The committee had many agenda items to discuss, including upcoming opportunities for certification, the use of social media, Empire Farm Days, changing requirements and much more. The meeting was long, but very interesting to be part of. It was evident that the members of the committee are really committed to improving the program and increasing BQA participation among NY beef producers through their in-depth discussion and collaboration on many topics.

Posted in **Connecting Feeder Cattle and Carcass Measurements to Retail Value of Beef**, **_Uncategorized**

Weeks 3 and 4: Carcasses, cutting and pelvic measurements

Posted on **June 14, 2013** by **meh325@cornell.edu**

Last week, I travelled to Canaseraga to evaluate carcasses with Lynn Bliven and Dr. Baker at Wilson's Beef Farms. This week, there were 12 carcasses for data collection; we made the same measurements as on the previous trips – back fat thickness, rib eye area, marbling, etc.

— This picture shows me measuring back fat on a hanging carcass. Fun fact: Since I'm so short and these carcasses are pretty huge I have to stand on a stool to take the measurements! We look at the rib eye between the 12th and 13th ribs. The carcasses hang upside down, so that's pretty high up at the hind end of the cow's abdomen.

— Here are the 12 carcasses that we evaluated last week. Generally, Wilson's kills 6 head of cattle each week. Since we do evaluations every two weeks, there are usually around 12 carcasses to be evaluated. In case you're wondering why it looks like there's more than 12 carcasses hanging: each carcass is cut in half lengthwise – so there's actually 24 halves hanging in the freezer.

Last Wednesday, I went back to Wilson's to watch and learn about the process of carcass cutting. It was really interesting to watch the carcasses be transformed from large masses of muscle, bone and fat into tasty looking steaks, roasts and other cuts for customers to buy. The men cutting out the carcasses were really helpful and taught me a lot about where different cuts of meat come from and what consumers look for when purchasing their beef. Because I'm an animal science major, I've learned all about the various muscles and muscle groups before. I've also learned a *very* little bit about different cuts of meat, but it was nothing like actually watching the cut-out process. It was fascinating to see how all of the muscles I'd learned about in class came together in the body and, ultimately, in the numerous cuts of meat that we can then enjoy…YUM!

The highlight of this week was traveling to Cornell's T&R farm to preform the first step of the timed artificial insemination protocol that we're using to breed replacement heifers. To do this, we weighed each heifer – this was more for records than for AI purposes – gave a shot of GnRH and inserted a CIDR. GnRH stands for Gonadotropin Releasing Hormone and CIDR stands for Controlled Internal Drug Release. Essentially, the combination of these two hormone reactants helps to synchronize the estrous cycles of the entire group of heifers. This practice is used on farms that use artificial insemination because it allows multiple animals to be bred at the same time, thereby increasing accuracy and efficiency of breeding. Next week, we will remove the CIDR devices and give the heifers another hormone shot to prepare them to be bred 56 hours later.

We also measured the height and width of each heifer's pelvic opening. This was used later to determine the theoretical size of a calf that could be born without assistance. Calving ease is a concern for the beef industry, particularly among heifers, because calving difficulty can lead to an array of problems and possibly even death of the calf and/or cow. Dystocia (difficulty calving) is an area for concern primarily with heifers (females who have not yet had their first calf) because they are not fully grown. Due to their smaller size and the fact that they haven't calved before, heifers are more likely to need assistance when calving than older cows. To measure the pelvic area, we used a pelvimeter (see photo below). This tool is inserted into the rectum of the heifer and squeezed to open up the end. The handle has a ruler on it that tells how widely the pelvimeter opens, which gives the dimension. We measured height and width, multiplied them and divided by a factor of 2.7 to determine the theoretical weight of calf that could be born without the need of assistance.

— Pelvimeter, used for obtaining vertical and horizontal measurements of the internal pelvic region of heifers to minimize incidence of dystocia.

With the measurements, I determined which heifers should be bred to which of the bulls we selected. The bulls are of two different breeds: a smaller purebred Angus and a larger Angus/Simmental cross. Heifers that had low calculated calf weights were assigned to the Angus bull, while heifers predicted to be able to handle giving birth to larger calves were assigned to the SimAngus bull.

The rest of my work this week has dealt with helping to prepare for the Beef Quality Assurance workshop that will be held in Allegheny County at the end of July. I also worked more with imputing data on to the spreadsheet from the Wilson's Beef project and on my research to find a relationship between temperature and tenderness.

Posted in **Connecting Feeder Cattle and Carcass Measurements to Retail Value of Beef**

Week 2: spreadsheets, tenderness and bulls

Posted on **June 2, 2013** by **meh325@cornell.edu**

My second week on the job was somewhat less adventurous than the first, but I still managed to keep pretty busy! I worked from the office in Morrison Hall (Cornell's Animal Science building) for much of the week, doing lots research, reading and busy-work. More specifics on what I accomplished this week:

1) I started off by updating the record sheet for the research project we are doing with Wilson's Beef Farms. This involved working on Excel to transfer data and formulas, as well as inputting missing information. The trial began last June, so there were several spots with a few bits and pieces of data missing – I filled I that data to give us the most complete record possible and made sure the formulas were working correctly.

2) I also did lots of reading and research into different factors that affect meat tenderness for part of the research that I'll be doing. We are hoping to use weather data from the time leading up to slaughter to determine if environmental temperature has an impact on meat tenderness. I was looking for previous studies in this subject area, and other studies that focused on tenderness and came across lots of interesting information. Dr. Baker asked me to compile this information into a small article for his June issue of Beef Cattle Comments, a newsletter he writes for beef producers across the state. Here's part of the article – I cut out the intro because that's mostly repetition from my Week 1 blog post.

One area I will focus on in my research this summer is beef tenderness. As we know, consumers want a product that is consistently tender. Therefore, it is important to understand the factors that can influence tenderness in order to help producers improve tenderness of their meat so they can market a better product. Through prior research, it has been determined that there are genetic, nutritional, environmental, and health-related factors that influence tenderness. Some of the primary influences are:

- ***Genetics***
  - Angus cattle have the highest genetic potential for tenderness, followed by other European breeds (Hereford, Red Angus, etc.).
  - Continental cattle breeds (Charolais, Simmental, etc.) have slightly lower genetic tenderness potential.
  - All *Bos indicus* breeds have significantly lower tenderness than all *Bos tarus* breeds.
  - Heritability is reasonably high (0.24-0.53), but because there is not an efficient way to commercially monitor tenderness in relation to genetics, it remains difficult to improve.
- ***Nutrition***
  - Number of days on grain can affect tenderness significantly
  - After around 180 days, tenderness decreases due to the maturity of the animal (100-120 days appears to be optimal).
- ***Health and Management***
  - Morbidity (sickness) can decrease DMI, which ultimately decreases carcass weight and marbling and

can lead to decreased tenderness.

- Castration of males before the development of secondary sex characteristics has been shown to help improve tenderness
- Pre-harvest stressors such as handling, group mixing, extreme temperatures, estrus and transportation can also decrease tenderness.

Currently, I am working to determine the exact relationship between temperature and meat tenderness using an average of the temperatures of the five days leading up to the slaughter date. I am looking forward to learning more about the relationships that influence tenderness and how producers can work to improve them and maximize their beef quality and consumer satisfaction.

Additional Reading: Tatum, J.D. 2006. Pre-harvest cattle management practices for enhancing beef tenderness, Executive Summary, pp. 1-24. National Cattlemen's Beef Association, Centennial, CO. Available at: http://www.beefresearch.org/ ExecutiveSummaries.htm.

3) As I stated in my article, I'm going to use weather data to evaluate the relationship between temperature and tenderness. Dr. Baker just got an electronic thermometer to mount on the Wilson's barn, but it wasn't used for the first part of the project. Because of this, I had to use historical weather data to record temperatures for the 5 days leading up to slaughter for each week since last June. As you can imagine, that task occupied a pretty large chunk of time! Hopefully next week we can install the electronic thermometer to get a more accurate and efficient measurement to use for the rest of the trial.

4) Dr. Baker taught me how to use a computerized model for synchronize estrus in cattle and timing when to artificially inseminate (breed) them. I used this model to set up a timeline for breeding the heifers at the Teaching and Research center that will be kept as replacements. Dr. Baker also showed me what to look for when selecting a beef sire from a stud book. Although I'm familiar with bull proofs from my prior experiences in the dairy industry, picking beef bulls was new territory for me. I went home that evening and browsed through the various bulls from the stud company that Cornell uses to select what I thought were the best bulls for the job. Dr. Baker told me that the first selection criteria when breeding heifers is calving ease, so I only considered bulls that ranked amongst the best in the country for calving ease. After that, I looked at docility. Temperament is important when heifers are going to be kept as replacements because mean cows can be very difficult to work with. According to Dr. Baker, there are already some mean cows in the herd, so it's important to select for docile bulls to minimize the negative temperaments that are passed to the offspring. In addition to calving ease and docility, I selected bulls based on a few carcass traits. I also had to determine the breed composition of each heifer to be bred to determine if it was best to breed her to a 100% Angus bull or to an Angus/Simmental (SimAngus).

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Posted in **Connecting Feeder Cattle and Carcass Measurements to Retail Value of Beef**

Week 1: Carcasses, Cattle tours and more

Posted on **May 31, 2013** by **hlm2**

Hello and welcome to my summer internship blog! I'll start off with a brief introduction of myself: My name is Mary Beth Hannon. I am a rising junior majoring in Animal Science at Cornell's College of Agriculture and Life Sciences. I have prior experience working with dairy cattle, horses, pigs, sheep and goats, but not beef cattle. It is my hope that this internship will help me broaden my experiences and learn valuable information about New York's beef industry.

In this blog, I plan to detail the experiences of my summer working as an intern for Dr. Mike Baker from Cornell Cooperative Extension's beef cattle program. My internship is technically based out of the Allegheny County Cooperative Extension, but the work I will do is all over the central part of New York, so I am staying in Ithaca.

Dr. Baker is currently in the middle of a lengthy project in which he is researching the various factors that affect carcass quality and the profit gained from a given carcass. The end goal of this project is to help producers improve the quality and consistency of their products in order to remain profitable. As part of the data collection for this project , Dr. Baker has been collecting information on carcasses for the past 9 months, compiling it in a spreadsheet and analyzing the results.

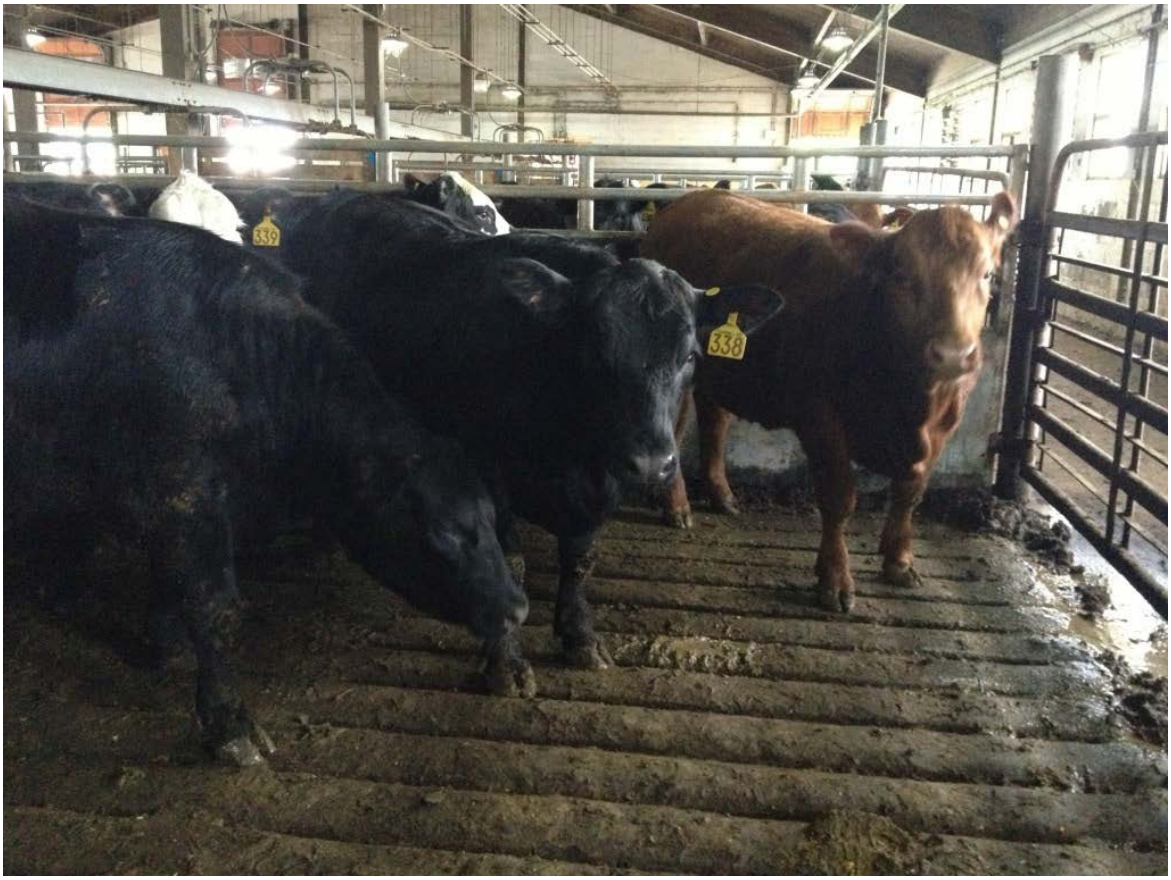
My internship experience began early Monday morning with a trip westward to the town of Canaseraga, NY. Chris and Bernadette Wilson, the producers Dr. Baker is working with for his project, have a farm and processing center where they finish and slaughter around 6-head of cattle each week. Since the project began, Dr. Baker has been traveling to Canaseraga every other Monday to collect information from the carcasses. This was a super interesting and hands-on first day! I got to help Dr. Baker as he evaluate each carcass; this process involved measuring the thickness of the back fat, measuring the area of the rib-eye between the 12th and 13th ribs, scoring the meat based on the level of intramuscular fat (marbling), and looking at the amount of internal fat that surrounded the heart, kidneys and other organs. Dr. Baker and I evaluated the carcasses and then compared our data with that of Lynn Bliven and corrected any discrepancies. Lynn is an extension agent from Allegheny County who has been helping Dr. Baker with his data collection. Later in the summer I will work more closely with her to put on a Beef Quality Assurance program for cattle producers in Allegheny County.

After collecting the data, we talked with Chris and Bernadette about their operation, the project and their goals for the future. Speaking with the producers really helped me to get a better understanding of the project and what Dr. Baker is hoping to accomplish with his research. The Wilsons are highly motivated and committed to producing a very high-quality product to market in their store. They realize the importance of producing consistently good

products for consumers, not only for their small business, but also for the entire beef industry. Hopefully the results of this project can help producers across the state grow better cattle to suit the goals of any given operation.

— Outdoor pens and fields at Cornell's T&R facility

— Cattle in outdoor pens at T&R center



— Value Discovery cattle indoors at Cornell's T&R facility

After leaving the Wilsons', Dr. Baker and I went to Cornell's Teaching and Research barn outside of Dryden, NY. There, Dr. Baker had to evaluate cattle (they were alive this time!) to determine whether or not they were ready to be sent for slaughter. He helped show me the various signs to look for when selecting a steer or heifer for slaughter. Some of these signs included the amount of fat around the brisket, the finishing near the flank and fatty deposits near the tail head. It's important to select cattle for slaughter at precisely the correct time to maximize meat quality and profitability. These cattle are part of Cornell's Value Discovery, a program that allows producers from across the state to learn more about how their cattle compare to others in reference to growth and carcass quality.

On Tuesday, I worked on updating the spreadsheet with all of the data from the Wilsons' cattle. I also did some reading and research of my own to better understand carcass evaluation and learn more about similar projects that have been done in the past.

On Wednesday, Dr. Baker and I went on a tour at New Penn Farms in Truxton, NY. The tour one of a series of tours sponsored by the New York Beef Council, which is an organization that promotes and supports the beef industry in New York. The tour was open to the public, with the goal of educating consumers about their food and the process that takes their food from "Farm to Plate". Many local dieticians were invited, as were school officials and industry representatives. Also in the crowd were local teachers, students, Cornell faculty members and farmers. Carl

Hinkle, owner of New Penn Farms, did a fantastic job explaining how his cow-calf operation runs and how he works diligently to care for his cattle. He taught those present about the basics of nutrition, breeding and genetic improvement within his herd and gave us a tour of his beautiful facilities (see pictures below).

Following Carl's tour, guests gathered around a chute to watch a young bull be put in a headlock and ultrasounded. Heather Birdsall, an ultrasound technician and Cortland County extension agent, gave a demonstration on how producers can determine carcass quality of their animals before they are slaughtered. Heather explained many of the basic parameters that Dr. Baker and I had used on Monday to analyze carcasses and showed us how those could be viewed on live animals using an ultrasound machine. Carcass ultrasound technologies have allowed producers to gauge the amount of finish on a given animal with greater accuracy, which can help determine when an animal is ready to be sent to slaughter. Additionally, this data can help determine genetic potential of a given animal so that producers can select the most high-quality animals to breed and replace their herd.

To conclude the tour, the ladies from the NY Beef Council cooked delicious steak for everyone. First, we all did a blind taste-test between 3 different types of steak. After the taste test, lunch was served! Everyone got to eat steak, fruit and veggies. When we were just about done eating, Dr. Baker spoke about a few other areas of public concern within the beef industry. He touched on the use of hormone implants to enhance growth and efficiency and on the use of antibiotics. I really enjoyed this event because it helped take consumers behind-the-scenes and showed them where their food comes from and what kind of people are committed to supplying America with a safe and affordable food supply each and every day.

— Front of the barn at New Penn Farms

— Front of the barn again, with some fields

— Fields of cows and calves

— Ultrasound picture of the ribeye area

— Steak for lunch!

— Guests on the tour listening to Carl Hinkle explain his operation

On Thursday, I worked with Gordana Jacimovski, Dr. Baker's technician, to weigh cattle for the Value Discovery program at the T&R center. With the help of the staff at the center, Gordana and I used the scale and an electronic identification system to efficiently weigh the various cattle. After accidentally allowing one large heifer to escape by not closing the headlock fast enough, I quickly mastered the levers of the chute to avoid any future mishaps! We also collected feed and forage samples from the farm and dropped them off for nutritional analysis at Dairy One in Lansing. These analyses will help the nutritionist at the T&R center know how to best formulate rations for the cattle to assure they are healthy and efficient.

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