Raising Hope For The Future

International Livestock Research Institute (ILRI)
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Dr. Norman Borlaug and John Ruan also cannot be forgotten. It is because of these two men that I, along with 17 other high school students, had the chance to intern abroad this summer. They are still positively affecting the lives of many.

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Thank you to everyone who made my internship possible!

"A food supply is like an engine…its pistons and parts must act in perfect synchrony. Above all, though, it must be fueled by adequate and reliable field production."

- Dr. Norman Borlaug

Personal Background

About Me

I come from the small town of Howard Lake, Minnesota where I live on a small family farm. We raise pigs, beef cattle, and chickens which have taught me the importance of agriculture in our everyday lives. At a young age I understood the importance of agriculture in providing food. As I grew up, I began to realize that agriculture is vital to our very existence. My passion for agriculture fuels my desire to help other countries improve their standards of living. Always having healthy, high quality meat never seemed like a luxury to me. I had my eyes opened while in Ethiopia when I had a steak that took a great deal of force just to cut a small piece off. That is the kind of meat Ethiopians are thankful to have. The first thought that crossed my mind was that I am spoiled and sheltered from the "real world".

This fall I will be a senior at the Howard Lake-Waverly-Winsted (HLWW) High School. During the upcoming year, I will serve as the National Honor Society President and HLWW FFA chapter Vice President. I am also involved with the concert band and participate in solo contest. To better prepare for my future, I will take multiple college classes including: Advanced Placement English and College In School Plant Propagation. I have plans to attend the University of Minnesota, St. Paul where I expect to major in Agricultural Education with a minor in International Agriculture. My career goal is to work with agriculturists in developing nations to provide them with feedback and suggestions on improving production. My interest in this line of work increased dramatically due to my involvement with FFA and the World Food Prize.

I attended the Global Youth Institute in October 2010. It was absolutely mesmerizing to be amongst so many people who have dedicated their lives to improving others'. The presentations given by past interns completely captivated me which led to pursuing an internship of my own. I desired to be a Borlaug-Ruan Intern because I want to make a difference in peoples' lives. Receiving an internship meant I would be working alongside researchers who shared a common goal. The best reward one can receive is to simply see the happiness created from helping others. I was always greeted with a smile, invited for many meals, and generally treated like part of a big family while in Ethiopia. I do not feel the same kind of compassion from most Americans. These people have little but, are always willing to give a lot. My time here has taught me many things but, the one that has

had the biggest impact on me is that giving out of wealth requires little commitment; giving out of poverty means giving everything.

Discovering My Purpose

When I was in middle school, my favorite sport was basketball. I knew I was put on this earth to play basketball and I was totally obsessed. I could name all the professional teams, knew statistics about my favorite players, and even tried to copy their fancy moves. Soon, I realized that standing at five foot one inch I did not have a future in the basketball industry. After this epiphany, I thought about being a singer, photographer, astronaut, and even a chiropractor. With every new occupation, I found something I did not like. I began to worry that I was never going to find the right career.

In my freshman year of high school I joined FFA. I cannot say that I immediately loved it, but once I got involved FFA became my new basketball. I participated in everything from contests to holding officer positions. Attending leadership camps in the summer ensured that my FFA life never stopped. I have become involved at the chapter, region, state, and now national level. Through my involvement, I have gotten to know many agriculture teachers and saw that all of them had something in common. They all had a passion for making a difference in someone's life. Being an FFA advisor and agriculture teacher allows them to develop today's students into tomorrow's leaders. This is exactly the kind of change I want to be able to make. Before joining FFA I was a shy, timid high school student who shuddered at the very thought of talking in front of large groups. I now love to present, especially about agriculture, and sharing my knowledge with others. Without even realizing it, I found which career I wanted to pursue. I knew I wanted to be an agriculture instructor so I could develop tomorrow's leaders.

In the spring of 2010, my FFA advisor/agricultural education instructor, Mr. Weninger, told me about the World Food Prize. Writing the essay sounded like a lot of work, but I was up for the challenge. No one from my school had ever participated in this before, so I was unsure of what to do. With a little guidance, I soon started my research. I happened to stumble across an organization called Heifer International. Upon further inspection, I realized there is the perfect job out there for me. I want to be able to teach people of developing nations how to productively raise crops and livestock just like the people at Heifer International. Fast forward to October; I was one of six Minnesota students to attend the Global Youth Institute. The Chief Executive Officer of Heifer International, Jo Luck, was receiving the World Food Prize. I thought that was a very ironic occurrence and

could not wait to see her in real life. Listening to her speak about different experiences she had intrigued me. Her line of work sounded very interesting which has been my influence to pursue a similar career. I am still planning to major in agricultural education, but now I plan to add an international agriculture minor into my studies. I am a very hands-on person which, means sitting at a desk for eight hours a day, five days a week is not my ideal job setting. I hold many interests for future careers including: staying involved with the swine industry, agricultural education, and international agricultural development. My hope is to incorporate all those goals by: interacting with other people, giving presentations, working with livestock, and most importantly, changing peoples' lives.

The Very Beginning

Poverty is a world away and there is really nothing I can do about it. Yeah, I see it on TV and it is great that others are trying to make a difference, but let's be honest; a kid from Howard Lake, MN cannot possibly do that kind of work. This

was my view on poverty before my internship experience. Sure, I knew helping those less fortunate was good, but I never took an active role. I was convinced that coming from a small town meant I could never change someone's life. Going to Ethiopia threw me head first into the perfect scenario where I could give to others. I pictured Ethiopia in a very stereotypical way. I envisioned hot weather, sandy deserts, make-shift shacks for buildings, and devastating starvation. I was shocked by the sight of modern buildings, green foliage, well dressed individuals on the streets, and the fact that I needed to wear a sweatshirt. While there are parts of Ethiopia that look how I imagined, this country has the potential to improve at a very fast pace. What Ethiopia needs are people willing to selflessly give up the comforts of their home country to share their time and talent. No matter who we are, each of us has unique gifts that are needed to alleviate poverty from this world. This is not a "one man job". This job will require team work, dedication, and a desire to experience true satisfaction.

At 8:00 a.m. on June 10, 2011 my plane touched down at Bole International Airport in Addis Ababa, Ethiopia. The landscape was completely foreign to me. There were little shacks lining the runway which gave me my first taste of life outside the United States. I grabbed my luggage, passed through customs, and found my driver. We took off through Addis driving past open markets and large crowds of people. I was already overwhelmed with this new culture I had just been submersed into. It occurred to me very quickly that I was a world away from the comfort and security I had known for 17 years. My home was a 14 hour plane ride away. It was up to me to deal with a temporarily uncomfortable situation, so I could experience what life is like outside the United States of America. I was about to embark on a journey that would challenge me in ways that most high school students never experience. Soon, I would be at ILRI learning how productive livestock can lead a country out of poverty.

About ILRI

The International Livestock Research Institute has many offices throughout Africa and Asia with its main headquarters in Nairobi, Kenya. There is also a principal campus in Addis Ababa, Ethiopia which is where my internship took place. They work to ensure farmers have productive livestock and viable ways to market them. Livestock are used as a tool to develop three major pathways out of poverty: developing the assets of the poor, improving smallholder productivity, and increasing market participation by the poor ("Why Livestock Matter | International Livestock Research Institute" par.5). Their vision is "To work at the crossroads of livestock and poverty, bringing high-quality science and capacity-building to bear on poverty reduction and sustainable development for poor livestock keepers and their communities." ("Mission And Strategy | International Livestock Research Institute" par.1). The International Livestock Research Institute is proud of the different partnerships they utilize which enable them to reach out to those in need. In Addis Ababa, multiple organizations have offices including: International Maize and Wheat Improvement Center (CIMMYT), International Potato Center (CIP), and African Insect Science for Food and Health (ICIPE), etc. There is a little bit of everything on the campus so you are almost guaranteed to find something of interest. The Forage Diversity Department is very proud of their new lab which was recently constructed and is now in full use. They also have a seed bank which contains hundreds of thousands of seed specimens. The goal of this department is to create productive forages which appeal to farmers (i.e. dual purpose crops for livestock feed and human consumption). Without feed to eat, livestock cannot thrive. Improving forages is vital to also improving the

productivity of livestock in general. There are many issues that are to blame for Ethiopia's poor agricultural outputs. Collaboration between the Animal and Plant Diversity Departments is being utilized in an attempt to conquer this issue once and for all.

My Supervisor

Dr. Tadelle Dessie was my mentor and head supervisor for the summer. He is very involved with projects focused on livestock development. A few of the projects he is involved with include: chicken health, sheep genetics, and indigenous cattle disease tolerance. He serves as mentor for me, along with multiple other staff under him and multiple Ph. D students. Dr. Tadelle holds a Ph. D in an Animal Science with a specialization in Animal Genetics and Breeding and is the Biotechnology team leader. He helped me to fit in with this group and even invited me to the team lunches every month. Getting to know everyone on the Biotechnology team was a lot of fun. Everyone was very welcoming which helped ease some of the homesickness I experienced.

Developing vs. Developed

The United States' largest farrow-to-finish hog operation is not, in any way, the kind of farm that I live on. Yet, there are farmers in the U.S. who consider owning 1,800 sows to be a small farm. After going to Ethiopia I can now say I have seen the three main types of farm operations. The first one being non-family owned corporate farms which, to many peoples' surprise, only make up 2% of American farms. The second type is family owned farms which make up 98% of all American farms and ranches. The third type is the subsistence farms, like I saw in Ethiopia, where providing food just for a family is difficult. Today, one American farmer can produce enough to feed 155 people. In 1940, this number was a mere 19 people fed by each farmer. In a little over 70 years we have seen our production increase eight fold. If we can experience improvements, as major as these, there is no reason Ethiopia cannot also experience change.

The United States of America once faced many problems similar to those faced by Ethiopians. We plowed our fields with oxen, scattered seed, and milked cows by hand. When Jethro Tull invented the horse drawn seed drill, crops were no longer scattered by hand. Today our crops are still planted in rows making it

evident that this is a good agricultural practice. Now we are utilizing technology like tractors and even global positioning systems. These changes did not happen overnight; hard work over many years has shaped American agriculture as we know it. America even shares a similar problem with Ethiopia which is a lack of agricultural literacy. With only 2% of Americans directly involved with production agriculture, it is increasingly difficult for consumers to understand their food supply. I have witnessed this first-hand while working at the CHS Miracle of Birth Center (MOBC) at the Minnesota State Fair. At MOBC I served as a spokesperson for the swine industry. There were a lot of misconceptions about farrowing stalls being inhumane, "Swine Flu" or H1N1, and being a pork producer in general. For six days I was an agricultural advocate talking with consumers, participating in radio interviews, and serving as a connection between urban and rural residents. This problem is not unique to the United States. Ethiopia also experiences the negative effects of agricultural illiteracy. In their case, they do not have the resources available to teach proper technique for raising crops and livestock. It is sad for me to hear a farmer would refuse irrigated land, and the chance to feed his family, just because he fears his lifestyle will disappear. To some extent it is ok to have strong cultural ties, but when it means people are unnecessarily going hungry, it would be best if some compromise could be reached. It is time for major changes to occur. This does not necessarily mean forcing people to go against cultural or religious beliefs. It simply provides us with the challenge of helping a few people who are willing to change so their success story can serve as motivation for others to follow suit. The biggest problem I have seen is farmers not willing to adapt. This lifestyle runs deep in their heritage. Changing this nation is not a job for outsiders to dictate. The only changes that will occur are the changes farmers want. We cannot import thousands of Cornish Cross Broilers and expect chicken production to improve. Ethiopian farmers do not want white chickens. It is important for Ethiopians to work together with foreigners to find acceptable ways to bring their country out of poverty.

My Work

Abstract – Chicken Project

What: How can we reduce the impact of infectious disease on village poultry?

Why: This is significant because Ethiopian farmers have the potential to move beyond subsistence farming. Currently, disease is a major limiting factor of production.

How: A survey was composed and used to interview local farmers. I will be entering the data collected into an excel document. This will tell us what major diseases are affecting poultry.

Results: The data will be used to identify which key diseases birds need to develop a resistance to. It will also help educate farmers as to which diseases are the most important to vaccinate against.

Conclusion: This will tell us what farmers are doing to prevent disease, control disease, and what phenotypic characteristics are important so birds can be developed that will be accepted by farmers.

Abstract- Sheep Project

What: How can we improve the genetics of indigenous sheep in Ethiopia?

Why: There was no breeding program in place before the start of this project. Now there is a ram selection process where rams are selected based on phenotypic characteristics that are demanded by local farmers. With this breeding program in place, only desirable traits will be passed on thus improving the genetics of indigenous sheep.

How: I will observe ram selection and make a questionnaire for farmers so I develop a better understanding of how they live.

Results: I will collect the data from my questionnaire and create tables to showcase it. These tables will be used in presentations and reports as supporting material.

Conclusion: I will learn about issues affecting farmers, what solutions they would like to see, and other facts about sheep production in Ethiopia.

Chicken Health

On my first day at ILRI, I met with my supervisor Dr. Tadelle Dessie. He informed me that I would be working with two different projects, one on chicken health and the other on improving sheep genetics. My first week was spent researching chicken and sheep production in Ethiopia. I read numerous publications from ILRI, internet articles, and looked through the Domestic Animal Genetic Resources Information System (DAGRIS) data base: http://dagris.ilri.cgiar.org/default.asp. This data base is something new that ILRI is implementing to better help them evaluate desirable breed characteristics and traits. They have information about cattle, sheep, goats, chickens, water buffalo,

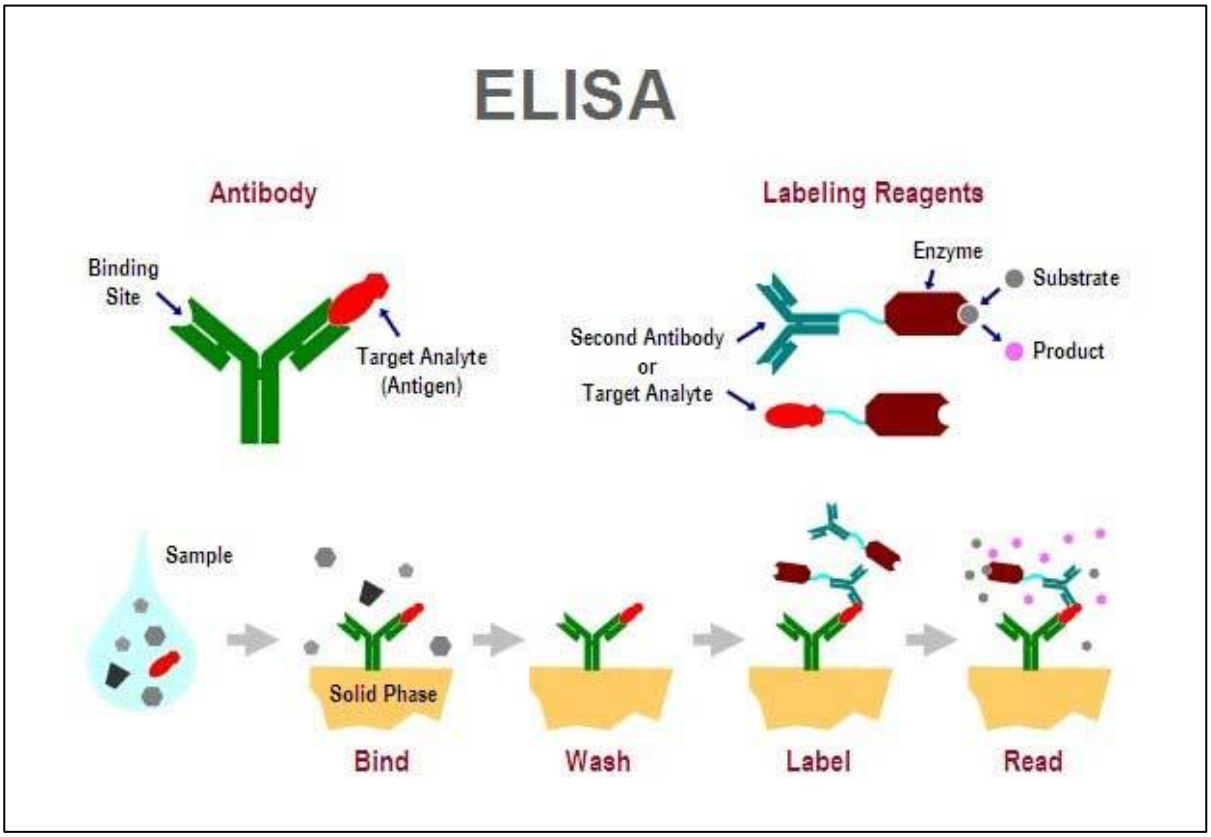
and even pigs. The background knowledge I gained from this was very helpful later on during my internship. On Friday of my first week, a group from the U.K., which had been working on the chicken project in Debre Zeit, came to Addis Ababa since one of them was flying home that night. This group was comprised of two Ph. D students, a Post Doc, and their university supervisor. They were all working on "Chicken Health 4 Development". The goal of the chicken project is to improve the productivity of village chickens without sacrificing their hardiness. Since disease is one of the biggest limiting factors for village poultry production, this research is vital to helping Ethiopian farmers move beyond subsistence agriculture. Traditional chicken production in Ethiopia has a low input/output type structure. Farmers do not want to spend a lot of money on feed, vaccinations, housing, etc. causing chickens to perform below average standards. This project is working to identify which diseases are affecting the chickens most. The results collected could help farmers realize the negative effects disease has on their flocks. Currently, the number of farmers who are treating their chickens is growing. In the near future it is expected that the results from this project will influence which vaccinations farmers administer.

I stayed in Debre Zeit for about ten days and had many new experiences. Dr. Stacey Lynch (Post Doc), Dr. Paul Wiggley (university supervisor), and Judy Bettridge (Ph. D student) ensured my time with them was educational and very eventful. Experiences included assisting with ELISAs (Enzyme-linked Immunosorbent Aassay) on Salmonella and Marek's Disease, entering data from surveys, watching a post mortem on a chicken, and organizing serum samples. ELISA is a technique used to detect antibodies or infectious agents in a sample. There are two different types of ELISAs that can be performed, antibody and antigen. I helped with an antigen ELISA. An antigen is anything (virus, bacteria, etc.) that stimulates the immune system to produce antibodies. Antibodies are proteins produced by the body to fight off antigens; the presence of certain antibodies can tell us which diseases a bird has been exposed to ("Antibody and Antigen" pars. 1&3). The first step to perform an antigen ELISA is to stick antibodies to a plastic surface. We used


Washing the plate


Finished ELISA

a 96-well plate allowing two wells per chicken. Next, we added a serum sample. If there were any antigens present in the serum, they would stick to the antibodies. The next steps were to wash the plate, add a secondary antibody (with an indicator), wash, and finally add a substrate that triggered the indicator to change color ("Biobest" pars. 1-4). Color intensity varies based on the level of antigens. The more intense the color is, the higher the level of antigens present. The plates are put into a machine that analyzes the color intensity and electronically computes a number relative to the color. On each plate there is a positive and negative control which all the samples are compared to. This is how the computer generated number is fashioned. The results are then evaluated and each chicken can individually be evaluated for disease exposure.



I was extremely impressed by the work of this group. As part of a grant, they brought new lab equipment over to use for the project. Once the project is complete, the equipment will be donated to the national research center. This machinery is vital to the success of alleviating the effects of disease on village poultry in Ethiopia. This group is also teaching research center staff proper technique for using the machines. It was incredible to see this transfer of knowledge. It really gave me hope that Ethiopians will soon be producing more food than ever before. The

poultry veterinarian also gave me the grand tour of the chicken production facilities on campus. He has an evident passion for the poultry production industry which will benefit this project. After my time in Debre Zeit was done, I headed back to the ILRI campus in Addis where I stayed for just a few days before leaving once again.

Sheep Genetics

This time I was off on a trip with the sheep project. Our first stop was in Mehal Meda, a small town in northern Ethiopia, with an elevation above 3,000 meters making it quite chilly! The purpose of our journey was ram selection. Prior to this project, there were no breeding programs in place. Breeding programs are important because they focus on improving the productivity and market demand of the animals. Many farmers are unsatisfied with the market performance of their sheep. This cannot be expected to improve unless advances are made to improve bloodlines. While this selection activity was merely based on the phenotype of the animal, not the genotype, it is still a major step forward. The ram selection activity involved numerous farmers, each of which brought their rams to be evaluated and possibly selected as breeding stock. Desirable traits in a ram include: wide body frame, strong set of legs, and white wool. If the rams were determined to be of high enough quality, they were distributed to different villagers to use for breeding ewes. If the rams were not up to standards, they were castrated. The whole idea behind this project is that by only breeding with the selected rams, the genetics of all sheep, produced in the target areas, will improve. Hopefully, in the future selecting breeding stock will be practiced independently by farmers. It is important for farmers to be decision makers and provide guidance. Animals will not be productive enough to overcome subsistence farming if they are not monitored and properly cared for.

While ram selection was happening, I interviewed farmers (before embarking on this journey, I prepared a short questionnaire intended to evaluate problems sheep producers are facing and what solutions they would like to see implemented). With the help of a translator, I spoke with 15 farmers in two different towns (Mehal Meda and Molale). I learned many things from interacting with these

agriculturists. They were all very willing to participate and enjoyed receiving American flag pins as a thank you.

This trip showed me the brutal reality that is the lives of many Ethiopians. On this trip I really thought I had it bad when I found out there were no bathrooms and worst of all, no showers. Three days later I was in a hotel room with a warm shower and a toilet! While I learned to appreciate the little things in life, I also wonder why I am given so many comforts. Why was I chosen to lead a worry free, American life while so many others are suffering? It was difficult for us to simply drive to this town where people are desperately trying to lead productive lives. I cannot begin to imagine how difficult it must be to make an attempt to live off this land. They simply do not have access to the resources necessary to overcome subsistence farming. Fortunately, as part of this project, cell phones were administered to villagers. This allows them to call places such as research centers or a veterinarian office to ask questions and receive advice. It really hurt to see how miserable these people are. They enjoy simple things, like having their picture taken, a lot! On more than one occasion a farmer would ask to have his picture taken then find it absolutely amazing that he could instantly see it on my camera. These experiences are constantly on my mind. Thinking about this kind of poverty creates many emotions for me. I am angry that people have to live this way, sad to see such misery, inspired to make a difference, overwhelmed by how many people this affects, and most of all challenged to utilize my time and talents to help others.

Our next journey was to a town called Awash in the Rift Valley. The week before I was in Awash, the temperature soared to 105 degrees Fahrenheit! I am a fan of warm weather so this trip was exciting for me. Driving into the Rift Valley, the landscape completely changed to look exactly how I pictured Africa. No joke, the change was so sudden and drastic; it looked like we had entered a different country. There was scrubby brown grass, tan soil, and huts made of sticks and cloth. We turned onto what was supposedly a road and drove across the barren desert for around 10 miles. We then came to a small village. Everyone was hard at work taking down their huts in preparation for their move in search of water. It

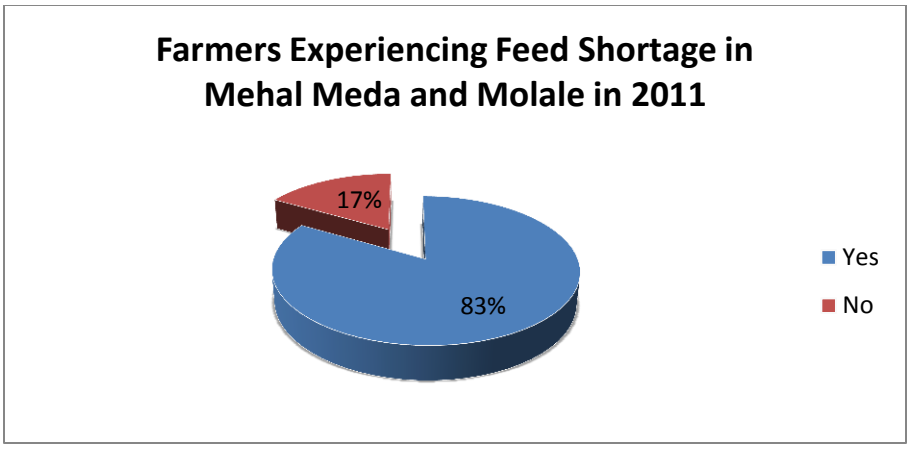
was evident everyone, and everything, was suffering from the effects of a drought. As I stepped out of the vehicle, the smell of rotting animal hit me like a brick wall. The temperature is in the upper 90's amplifying the smell about 90 times. I looked to my right and saw dead calves, sheep, and full grown cows. I was already stunned and had only been in

the village for a few minutes. It was like living bad dream and not being able to wake up. It was so surreal to experience this in real life; my body went completely numb after a few minutes. The sun's rays were beating relentlessly on everything, babies were crying, calves were bellering, and there was no comfort to be found. I was in complete shock. As I look back at the pictures I took, I think to myself, "Those don't look that bad". My memory tells me otherwise though. Poverty looks the same on TV as it does in real life, the difference is that it does not have the same impact.

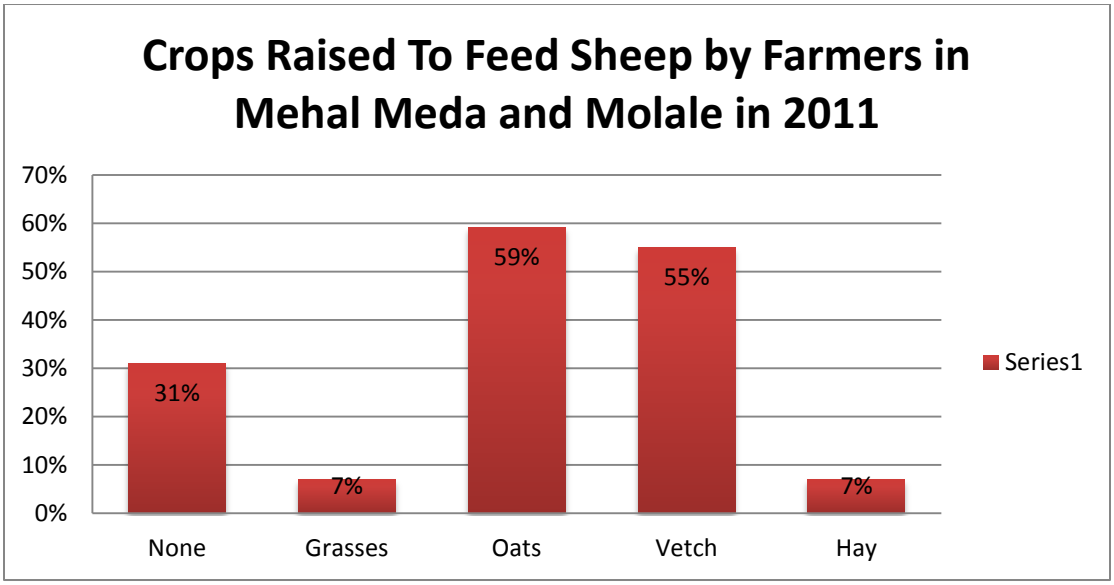
Later that night, I was eating with one of my advisors and we started talking about all that I had seen during the day. I expressed my concern for how they were living which is when he told me something rather surprising and slightly shocking. He said they liked their lifestyle and were afraid of losing this way of life. Now I was confused. How can people like living under these conditions? I was mortified by the very sight of it, yet these people do not want to change because they fear losing their way of life. This, surprisingly, made a little bit of sense when I thought about it a little longer. The idea of living in the city does not appeal to me and being the stubborn person that I am, I refuse to move near one. I like the freedom of living in the country, the responsibility of raising livestock, and the time spent with family. Living in the country does not mean that I give up the comforts of city life which tells me that these Ethiopians may have to alter their lifestyle but it will not be totally lost. I can still eat fast food, go to the movies, shop in the mall, and go bowling. A "country" life does not mean starvation or being deprived of elements essential to life.

Data Collected

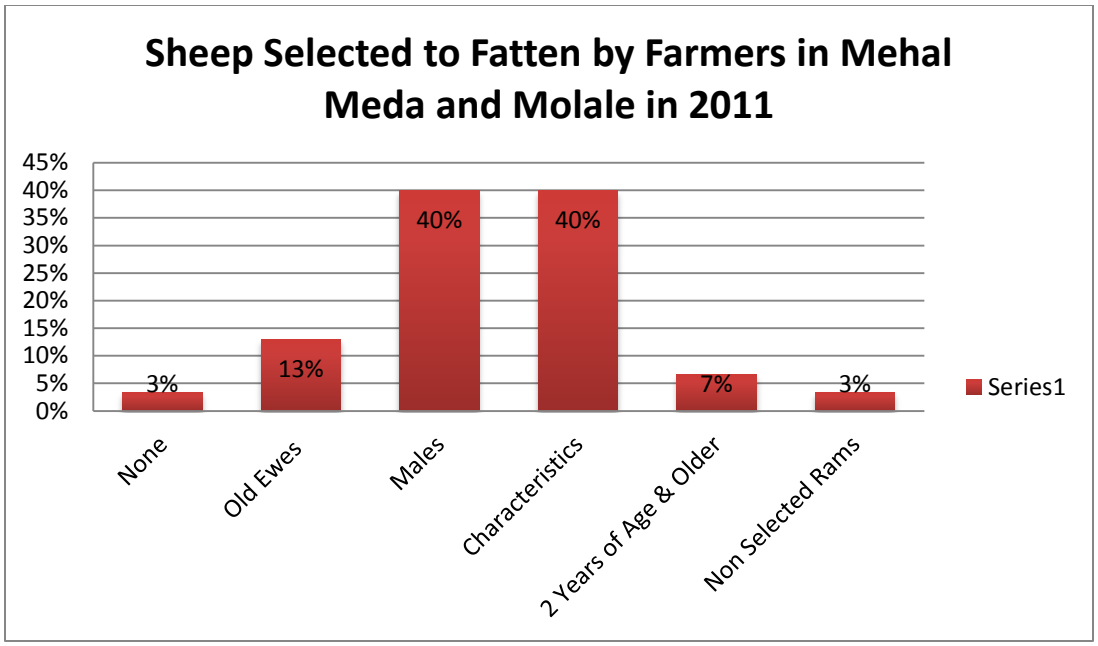
After my time in the field, I was back at the ILRI campus until my internship was over. On campus I analyzed the data collected from my surveys. To do this, all responses were coded and entered into an excel document. This allowed me to make charts and graphs displaying the information I had compiled. I discovered that a majority (83%) of farmers experience feed shortage throughout the year.



The ILRI campus has a very unique situation in that there is work being done on livestock and forages on the same campus. This is essential because in order for more productive livestock to flourish, there must also be improved forages. An astonishing 31%, of farmers interviewed, said they raised no crops specifically for feeding their sheep. Livestock feed on crop residues, which do not provide the necessary, breed specific, nutrients needed to be productive. It was promising though; to see 59% and 55% of farmers say they raised oats and vetch, respectively, as feed for their sheep.



While fattening castrates is common practice in the United States, no one in Ethiopia responded as solely fattening castrates. The reason for castrating animals raised for meat is to prevent a strong flavor from developing in the meat. While not fattening castrates is not detrimental to the sheep producer, it should still be considered as an improvement for the future.



My questionnaire touched on many different aspects of raising sheep and farming in Ethiopia. This was done to help me gain a better understanding of what traditional agriculture is like. The projects I worked on are remarkably relevant to improving food security and eliminating poverty from Ethiopia.

Overall, I am quite satisfied with the information attained from these surveys. I did however find there may have been a translation problem with one of the questions. When asked what solutions farmers would like to see made more available to them, many interviewees told me what they were currently doing to overcome their problems. I still recorded the answers I was provided with, but I do not consider it accurate. If I were to redo the surveys I would change the wording of that question and add more questions about what is appealing about raising sheep in Ethiopia. I learned many things just from the surveys themselves. One of the biggest improvements I would like to see happen is more education about properly raising crops and livestock. As I mentioned earlier in my paper, agricultural illiteracy is a problem. Some farmers told me they were going to change the environment by planting eucalyptus trees and others do not plant their crops in rows, they just scatter the seed. I plan to pursue a career where I have the chance to teach villagers techniques that will increase their productivity. I now see this type of career is extremely necessary for reducing poverty worldwide.

Conclusion

Future Studies

If I were to create a project of my own, there is one specific problem I would target. I would look into illiteracy and the unwillingness to change. It was shocking for me to find out farmers are extremely unproductive, yet they do not want to change. My plan of action would be to create a program bringing agricultural professionals into Ethiopia who would work with research groups. While I was at the Ethiopian Institute for Agricultural Research (EIAR), I witnessed the poultry group ask for help to improve their production facilities. They know there are many improvements that need to be made, they just need some guidance. These people are willing to change; they realize change needs to happen. If we can get places like EIAR on track, they can work to influence the "locals" to try new agricultural practices. It is often easier to influence others by actions than by words. Once people see what productive agriculture looks like, they will have a desire to improve.

The job of the agricultural specialists would be to explore all options available to the research center, then assist with drafting a plan of which changes need to happen and how they will occur. It is important to remember, however, that small changes are always better than no change at all. Even working to eliminate rodents or having staff wear boots devoted to one, and only one, barn are major steps in the right direction. It will not be an easy job; it will require problem solving skills and flexibility. The job will be made easier with the support of the research institution. Major changes may not happen in my lifetime, but if I can be the driving force behind changes that happen 50 years after my time, I will be satisfied.

Lessons Learned

I came to Ethiopia thinking I could change an entire nation in my lifetime. My theory is to set goals just beyond my reach so I have to work hard to achieve them; soon, I realized this goal may be overly ambitious. Changing a nation does not happen overnight. It is the result of many individuals working together toward a common goal. That does not mean I still cannot make a difference. One thing I can do in my lifetime is work on changing one person's life at a time. By concentrating my efforts to a smaller scale I ensure my goal will be accomplished.

My hope is the people I help will then, in turn, help those around them creating a ripple effect. Overtime, my influence will have affected many. Sometimes taking a different approach is necessary.

A second lesson I learned is the importance of team work. If a group of people can "put their heads together" problem solving becomes so much easier! It is also essential to have a support group to help during the frustrating times and celebrate after success. While I was at ILRI, I noticed everyone was like a family. This helps create a positive work environment where tasks are accomplished. This is especially critical for organizations that are helping feed the hungry.

I came to Ethiopia without a true understanding for the world around me. This entire experience is the most difficult event of my life thus far. At 17 years old I saw poverty for the first time. Many Americans live their entire lives without a true understanding for life in a developing nation. Before I came to Ethiopia, I always thought people living in poverty were the minority. The harsh reality is that they are a majority of the population. Eighty percent of humanity lives on less than ten dollars per day. This is 5.15 billion people ("Poverty Facts and Stats – Global Issues" par. 1)! That is more than every single person living in the U.S. Granted, 10 USD converts to a larger sum of foreign currency, but it is still just 160 birr. I was given that amount of money for a daily food stipend. My 160 birr daily did not have to feed a family, pay for housing, supply clothes, or support other living expenses.

Life Outside Work

I met so many people while in Ethiopia who made my stay absolutely amazing! The group from the U.K. adopted me for two weeks and made sure my stay in Debre Zeit was interesting. They took me out for tacos, on a boat tour, to the local market, and even in the lab they made sure I always had something to do. I am very grateful they were willing to spend time with me and show me around. They are a fun group of people to be with and have a passion for their work. Another person who made my stay eventful was my supervisor's son Nahom. Since I did not have a chance to venture out on my own, he showed me around Addis. I saw the medical college that he studies at, a beautiful Orthodox church that is probably the largest church I have ever seen, and we saw Transformers 3. It was really cool to see Ethiopia through the eyes of someone who lives there. I had many experiences in just a few hours. From chaotic mini bus rides to finding out I could not have a camera in my bag at the movie theater, my first experience of true Ethiopian life was definitely memorable! My supervisor invited me to his house for

a meal one evening which was delicious! I really appreciated the invite because it made me feel like a part of their family. His kids were a lot of fun to talk to and play games with. They were interested in me and I was interested in them so there was never a dull moment. Marieka, my neighbor from the Netherlands, is getting her Ph. D in the U.S. so we spent a lot of time together. She was always willing to accompany me on a walk to the grocery store or to take an adventure outside ILRI. We also became good friends because she left the day after I did so we never had to worry about being alone.

The time I spent with others discovering Ethiopia really made this a memorable experience. Anytime I was out sight-seeing, time flew by! There was so much to see and so little time to see it. I am just happy to have had the chance to see everything I did. Thank you!!

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Trip Pictures

Top left: Marieka and me drinking smoothies

Top right: Genesis Dairy

Middle left: Boat ride on Lake Hora

Middle right: Making fruit salad

Bottom left: Group from Debre Zeit