

The Show Ring, the Microscope and the Angus Cow

Mueller's Angus involvement shaped her career path.

Story by Peyton Schmitt and photos by Whitney Whitaker, American Angus Association

As she peers through a microscope, Maci (Lienemann) Mueller studies the specimen on her slide — microscopic, yet abundantly important. Although miniscule, this sample holds powerful data, possessing the potential to be incredibly influential.

This contradiction bears a striking parallel to Mueller's story, a series of unique experiences which led her to this lab at the University of California, Davis, as a doctoral candidate in animal biology. On the surface, it's hard to grasp the depth of her knowledge. When studied closely, Mueller epitomizes the success Angus youth can achieve when they capitalize on the opportunities presented by the breed and its programs.

A first-generation Angus breeder from Princeton, Neb., Mueller had no idea the six registered Angus cows her parents purchased when she was 2 years old would shape the trajectory of her life.

"As our family grew,

so did our Angus cattle operation," Mueller, the oldest of four siblings, says.

Lienetics Ranch grew to 300 registered Angus cows, and the family hosted annual production sales, with each family member playing an important role. From an early age, the siblings embraced their

upbringing. Mueller first remembers starting out holding gates for her father, but she continued to take on more responsibilities as she got older.

"One of my specific roles, being the oldest, was collecting data and recordkeeping," Mueller says.

She gathered and tracked information to submit to Angus Herd

Improvement Records (AHIR®). She soon saw the importance of data, and how it influenced their cattle's genetic predictions. This sparked her interest in livestock genetics, a passion which has fueled her career path.

While the family's primary focus was using genetic indicators to produce Angus cattle with profitable traits, the children also enjoyed showing animals they raised through the National Junior Angus Association (NJAA). Mueller recalls her parents encouraging her and her siblings to take ownership of their projects.

From breaking calves to submitting entries, the Lienemann children handled all preparations



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necessary to exhibit at events like the National Junior Angus Show (NJAS). The family attended their first NJAS in Des Moines, Iowa, in 2008 and discovered the NJAA offered opportunities well beyond the show ring.

“We showed up and had no idea how many awesome career development and leadership events there were,” Mueller says.

She immediately jumped in that year, participating in activities from the quiz bowl competition to the judging contest. Through her NJAA involvement, Mueller stepped outside of her comfort zone and gained valuable career skills, while also pursuing her own interests.

At the 2011 NJAS, she delivered her first prepared public speech, and although she was nervous, it was a defining moment. A member of the Nebraska Cattlemen’s media team, who was listening as Mueller spoke, found the topic so interesting that he invited Mueller to the Nebraska Cattlemen’s annual meeting.

“That was a pivotal point for me, being able to go to that meeting and present,” Mueller says.

This experience unlocked another area of interest, as she gained an appreciation for the importance of policy in the agricultural industry.

Shaped by her upbringing and her experiences as an Angus junior, Mueller received a bachelor’s degree in animal science with a minor in political science from the University of Nebraska-Lincoln in 2016. She says she had a lot of encouragement to take charge of her own education.

“My parents believe that if you invest in something, then you



Maci Mueller’s role on her family’s ranch evolved as she grew older. Starting with simple responsibilities, she soon graduated to recordkeeping and collecting herd data.



PHOTOS COURTESY OF MACI MUELLER.

yourself are more invested in its value,” Mueller says.

Responsible for funding her own degree, she credits the Angus Foundation with aiding her in her academic pursuits. She says she is thankful for the breed’s support of youth with strong work ethic and a desire to influence the agricultural industry, and feels fortunate the Angus Foundation recognized both her efforts and her potential.

In addition to being a scholarship recipient, Mueller also served as the 2013-2014 Angus Ambassador. While serving in the role, she attended an annual Angus tour in Albany, N.Y.

“That was quite an experience for a sophomore in college who hadn’t traveled much, but fortunately the Angus world is friendly,” she says.

During a dinner in Albany, she happened to be seated at a table

with a representative from Neogen GeneSeek, with whom she connected over her passion for genetics. This conversation ultimately led to an internship with Neogen during her undergraduate studies, which continued to amplify her interest in the field.

Driven by her affinity for livestock genetics, which she had continued to cultivate since it took root on her family’s operation, Mueller chose to further her studies at the University of California, Davis.

She is currently a doctoral candidate under Alison Van Eenennaam, a well-known animal geneticist. Her research goal has always been to provide tools and education that will benefit livestock producers. Mueller studies the application of advanced biotechnology, such as gene

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editing, to increase the efficiency, profitability and sustainability of livestock production.

Gene editing allows geneticists to precisely target a location in the genome to make desired changes, she says. This may include disrupting a gene to stop the production of a specific protein, inserting a new gene or even incorporating genes from different breeds.

Mueller compares this to crossbreeding but says that gene editing eliminates the necessity for the time-consuming process of backcrossing to achieve an animal's original genetics.

"The really cool thing about gene editing is being able to precisely change a trait in just a single generation," Mueller says. "That's a great advantage for a species like cattle, which have a longer gestation period."

The powerful tool could ultimately create a great affect on the livestock industry, Mueller says. She continues to pursue her interest in agricultural policy through various fellowships and work at the California state capitol. Upon completing her studies, she says she's open to whatever opportunity comes next.


Mueller wants to continue research, but she also recognizes how agricultural policy affects producers. Her ideal career would pair these two worlds together, potentially as a scientific advisor for livestock policy.

Her ultimate goal is simply to give back to those who helped raise her.

"I've been very fortunate to be involved in the Angus breed through most of my life," Mueller says. "It has made my world so small, which is truly beneficial, because I really believe in the power of relationships and being able to accomplish things together."

Mueller knows she is not alone in the ways she benefited from her NJAA involvement and the generous support of the Angus Foundation. She is inspired to see many of her former peers now influencing the industry. Mueller encourages other young Angus breeders to take advantage of every opportunity the breed presents, try new things and capitalize on each chance to grow.

"You never know where you might find your skill set," Mueller says. "My involvement has truly impacted my life, and I hope to someday give back to this great breed."

Mueller's story is one of a motivated kid getting a boost from Angus involvement. She's got brains, commitment and a heart for Angus cattle — that's powerful potential. 

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