

Industry Insight

Industry members share insight on data, cattle feeding and genomic tools.

by Holly Martin, American Angus Association

The American Angus Association Board of Directors met Jan. 14 in Denver. Board directors and Association members had the

opportunity to hear from Justin Sexten, Performance Livestock Analytics; Mike Thoren, Five Rivers Cattle Feeding; Jared Decker,

University of Missouri extension; and Stephen Miller, Angus Genetics Inc. (AGI); during the Listening Session.

Busting the Data Silo

Data should help make decisions.

Data is just data, until it helps us make decisions.

With significant changes occurring within the agricultural industry surrounding “big data” and various implications to breed associations, Justin Sexten, vice president of strategy for Performance Livestock Analytics, shared his perspective and outlook on the topic.

“If you can’t get the right data to the correct person at the right time in a way they can understand it, you have a data silo,” he said. “And that’s what we’re in the business of busting. Ultimately, how do we eliminate the siloing of the information?”

Sharing data across segments of the industry is Sexten’s business. Performance Livestock Analytics collects and shares data for cattle producers and feeders, shares it in real time through the cloud, helps them make decisions and ultimately

make more money.

“You take data and turn it into information,” he said. “Information becomes knowledge, and ultimately, it becomes a decision.”

Sexten relates it to a diamond. One facet is genetics, another animal health and another is nutrition. “And the more facets, just like a diamond, the better and more valuable the

decision.”

The challenge is transforming data into information, and information into decisions.

Data collection, particularly in the future, can be very passive and non-disruptive, Sexten said. “Today, it’s very mechanical, and it’s a lot of work.” Seamless data collection, combined with cloud storage makes the information more usable.

Sexten illustrated passive data collection with an example of ultra-high-frequency tags, with a range of 16 to 30 feet and a sensor recording

an animal’s normal behavior at the feedbunk. The best pen riders in the world can’t watch an animal 24 hours a day. The data collection flags abnormal behavior, signaling very early that the steer is sick. While that concept isn’t necessarily new, as technology improves, it also becomes less expensive and more practical for the average cattleman.

Ultimately, that’s the goal, Sexten said. “Health has such an impact on profitability. What are the behavioral aspects we’re not able to detect with our eye that machines and technology allow us to observe deviations from normal?”

Not only the deviations from the individual’s normal behavior, but how that animal may be different than his pen mates.

Tags, devices that cattlemen already use, can be a component of a solution to sharing information up and down the supply chain through a cloud-based data system.

“When I put in information, it goes to the cloud, and now anyone who

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— Justin Sexten

has access to that account, frankly, sees the decision and information that I put in,” Sexten said. If a nutritionist changes the ration while a truck driver is on vacation, the information is there seamlessly.

Typically, the biggest concern with data collection is the loss of privacy.

“If the value proposition is right, the customer is willing to share the data,” he says. From location service on your phone to give you directions in unfamiliar places, to health data from DNA services like 23andMe®. If there’s value to the user, they are willing to share the information.

Sexten also challenged Angus breeders to think about data from

the provider perspective, as well.

“When we think about sharing information, customer experience is what drives people to use technology,” he said. How the customer best receives information may differ from how the seedstock supplier thinks about sharing information. User interface is extremely important.

“Is the [sale book] what your customers are used to looking at? Is it the best way to convey information, or is it the only option I have?” Sexten asked.

The challenge is to think about how the customer needs to make decisions based off of the

information, and make their user experience as seamless as possible.

“The Angus breed is foundationally ingrained in data,” Sexten said.

Taking that to a higher level is the next hurdle. Using data for more than selling a bull is what breeders need to think about. Asking questions like, “How can I assist my commercial customers with making better management decisions?” Or, “How do I get more information on my seedstock operation?” is key.

Sharing data up and down the value chain will be important in the future. Because, “the most expensive data that we see, is data that’s never shared,” Sexten said.

The Cow Herd of the Nation

While terminal traits are important, the leader of the largest cattle-feeding entity in the world reminded Angus breeders not to focus on only one trait.

“You are the cow herd of the nation,” said Mike Thoren, president and chief executive officer of Five Rivers Cattle Feeding. Thoren offered attendees a real-world perspective from his segment of the beef industry. Five Rivers is composed of 11 feedyards in six states, and has a one-time capacity of 900,000 head of cattle.

Thoren said he appreciates the focus on terminal traits because that’s where his business makes money, but he reminded breeders the Angus cow was what led the industry to turn the cows in pastures everywhere black.

“You see it driving down the highway,” he said. With that, the breed has a huge obligation. “Where Angus goes, there goes the cow herd of the nation,” he added.

One of the things Thoren thinks Angus breeders should keep in focus

is maternal traits. “The number of live-born calves a year matters.”

“It’s all a balance,” he said of trait selection. “Keep doing what you’re doing. Keep focused on everything. Don’t single trait it.”

The focus on quality has been felt in the feeder segment.

“I’m grateful for the work you’ve done,” Thoren said of the Angus breed. “You have done a fantastic job of putting quality into the grade.”

When starting his career, Thoren said 35 to 50% of the cattle were grading Choice. Today, it is 75 to 80%, and that’s largely on the backs of the Angus breed, he said.

“That’s something you should be proud of,” Thoren told Angus breeders.

As the breed moves forward and looks to the future, Thoren discussed the qualities cattle feeders want

— docile, healthy, high-grading cattle that have the capacity to grow efficiently. Preconditioning and weaning are important. And at the same time, the industry must keep an eye on carcass weights. As steers grow beyond a 900-pound (lb.) carcass weight, they become less valuable, he said.

Value-added programs are becoming increasingly important, Thoren said. As consumers and foreign markets look for cattle raised

in specific ways, the market is responding. Dual certification for Non-Hormone Treated Cattle (NHTC) and natural helps logistics.

“Packers are trying to drive complexity out of their system,” he says. Dual-certified cattle allow them more flexibility.

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Thoren told the group bovine congestive heart failure (BCHF) is a concern. In the research Five Rivers has done, they see that BCHF isn't just a late-feeding issue. They are seeing the problem throughout the feeding phase.

"There needs to be a lot more research on that and see if it's really an Angus issue or a whole cattle industry issue," he said. "I think that's something that data and science needs to bear out.

"I think that's a question you guys should ask," Thoren told the group.

"If it's your issue, you need to solve it, but you need to answer the right question. You need to make sure you understand whether it's real or coincidental."

Thoren commended Angus breeders on being the leaders in collecting and using data to improve the beef industry.

"You're very forward-thinking," he said, and challenged producers to continue that path. "It's a data-driven business, not a tradition-driven business." The Angus tradition, he said, is to be innovators.

"That's something important," he added, "to keep the tradition of innovation."

It's something that Angus breeders should never lose sight of, he said.

"You are the leaders in the industry," he said. "You have the scope and breadth to make things happen. You believe in data, and you've been a huge positive influence throughout my career in resurrecting beef demand and getting our industry to where we are."

What's an EPD without genomics?

New genomic tools increase accuracy for cattlemen.

Jared Decker's grandfather was a cattleman. He taught Jared the right way to build fence. He taught him to value good cattle. And he taught him to respect the tradition of the cattle industry.

Decker is now assistant professor of beef genetics at the University of Missouri. While Decker continues to respect that tradition, he also recognizes the tools and technology of the modern-day beef industry.

The legacy of a strong and vibrant beef industry is dependent on recognizing new opportunities, Decker said, and in particular — technology adoption.

One technology that is commonly used today by cattlemen, is expected progeny differences (EPDs). Today, most beef producers don't give a second thought to the validity that EPDs bring to their breeding decisions. Decker reminded breeders not to lose sight of what "expected" means.

"Not only is it talking about a prediction of the future, but it's also

meaning an average of a large group," he said. "It's a prediction about how the average of a calf crop is going to perform."

Recently, cattlemen have a new tool — genomics — that helps add to the accuracy of those EPDs, but there remains a question of whether they are having too much influence on the resulting EPDs.

The question comes up when an animal's EPDs change significantly after they are genomically tested. But Decker said EPDs without genomics are the average. Adding genomics ties specific genes to specific performance data measuring genetic similarity and increasing the accuracy of an EPD.

And yet, biology is still random. For the same reason that brothers in the human population are different, Decker said, so too are full-sibling bulls. One brother may be tall, lanky and fair-haired; and the other brother will be shorter, broader and have dark hair. The two are the result of the same mating, but the genetics they received are different.

"Consistency is one of those things that producers really crave," Decker said. "They want to make sure they have that very predictable, very uniform calf crop, and biology just continues to smack us in the face and not give us that consistency."

Genetic variation is always going to be there. The typical bell curve, regardless of selection, will show consistently. While the shape of that curve stays the same, producers can slide that curve left or right based on the breeding decisions they make.

"For a long time in the beef industry, we would hear people market a set of flush-mate brothers," Decker said. "There was kind of the implication there that these full brothers were carrying identical genetics, and in reality, that couldn't be further from the truth."

Genomic testing actually allows us to identify those genetic differences between full siblings and allows us a much more accurate and a much more reliable estimate of those genetic merits, he said. That happens

by using pedigree information to measure genetic similarity.

“So now the performance data that we collect and the contemporary groups that we report, the pedigree information and genomics — they’re all working together, pulling in the same direction, trying to make sure that we get as accurate predictions as possible,” Decker said.

We know adding genomics to the mix adds to the accuracy of an EPD and gets us there faster, said Stephen Miller, AGI director of genetic research. A recent study conducted by AGI determined how well performance and genomics predict an animal’s underlying breeding value, since that represents his true genetic merit.

The study (described in more detail in this month’s By The Numbers

column on Page 42) compared 178 genotyped Angus sires, born in 2015 and 2016, that have progeny performance records for Birth Weight (BW), Weaning Weight (WW), Yearling Weight (YW) and ultrasound IMF (IMF). Those records were used to calculate a classic progeny-based EPD without genomics as an indication of the sire’s true breeding value. AGI compared these classic progeny-based EPDs on those bulls with EPDs calculated with different sources of information including parent information and adding their own performance, genotypes alone and genotype and performance together.


“In all the scenarios, an EPD generated with just a genotype is better at predicting the future of a young bull’s progeny performance

than an EPD that includes his performance data, but no genotype,” Miller said.

The results tell us that a relatively inexpensive genomic test can improve the accuracy of EPDs significantly, allowing breeders to more accurately market their cattle to their customers.

So should producers spend their resources collecting phenotypic data (or performance data) or spend that time and money on genotyping? Decker said the research shows you should do both.

“At the end of the day, if we stop collecting trait records, our genetic evaluations fall completely apart,” Decker said. “So, it’s important that we get complete, accurate records turned in because that’s really what drives the bus.” **AJ**



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