

Strategies from the Competition

Poultry researcher shares genomic strategies for a changing world.

by Kasey Brown, senior associate editor

Simple and complex do not directly correlate to easy and hard, said Mitch Abrahamsen, vice president for research and development (R&D) for Cobb-Vantress. For example, losing weight in concept is easy, but in actuality it is hard to do. Driving a car is complex, yet it is pretty easy to do. Genomics is both complex and hard, but the hard is what makes it great, he added.

Tasked with making the complex and hard accessible, Abrahamsen shared with attendees of the International Genomics Symposium at the Angus Means Business National Convention & Trade Show how genetic strategies can bridge between species. He granted cattle are not chickens, yet genomic data is useful in both species. The event was hosted Nov. 3-5 in Overland Park, Kan.

Innovation has increased efficiency in the poultry industry dramatically. He illustrated the point sharing that through the use of genetic selection innovations, the poultry industry produces the same amount of meat with 65 billion birds as it would have needed 74 billion birds to do without innovative selection.

Selection pressure drives the genetic process, he explains. Phenotypes are still king, but DNA genotypes give more data, and more data is better. Cobb measures more than 40 phenotypic traits — like gait scoring, joint formation, blood oxygen levels, file



PHOTO BY JENA MERRILL

►“In an era of cheap genotypes, phenotypes are king,” said Mitch Abrahamsen of Cobb-Vantress.

shape, feed conversion, ultrasound, immunity testing and more — and selects for birds that score highest to improve genetic gain.

What they are doing works, but market changes, environment taxes, antibiotic regulations, rising feed costs and consumer perception sometimes require changes in direction. To make those changes, he said, their R&D department continues genetic progress to have predictable year-over-year improvement, while also focusing on sustainability, balanced selection and leveraging innovation. He said they leverage innovation by investing in new technology, driving new paradigms to pedigree breeding, and selecting for new traits or old traits in new environments.

Abrahamsen repeated that genomics adds data, and more data is always better. Working backward, he said, they find the birds with desirable phenotypes, and then find those genotypic loci in those birds. Those loci become markers of interest in

genetic selection. Strict genetic variation is the driver for progress. For every 1,000 males, he says, only 30 are kept for breeding, thus populations can change quickly.

Genomic opportunities include increased genetic gain through higher accuracy, higher selection intensity, decreased generation intervals and decreased identification of variation. He added that genomic predictions are more accurate than traditional selection, but should be used in addition to traditional selection. He shared an example of birds chosen just on phenotype

and a group of birds genomically tested for the same criteria. Only 37% of the original group selected met the genetic criteria also. However, those birds in that 37% improved those traits almost twice as fast as the rest of the group.

“In an era of cheap genotypes, phenotypes are king,” he said. Yet he added that the combination of genotype and phenotype data makes the fastest improvement. “More data is better, and DNA genotypes are more data,” he concluded.

The International Angus Genomics Symposium was sponsored by Neogen GeneSeek Operations.



Editor's Note: This article is part of the online coverage of the Angus Means Business National Convention & Trade Show provided by Angus Media. Visit the convention Newsroom available at <http://angusjournal.com/NCnTS/2015/index.html> to access additional summaries, PowerPoint presentations and the audio of the sessions.



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