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O&T Farms invested in important nutrigenomic research for breeder birds



Above: Aizwarya Thanabalan from University of Guelph

linPRO, and science, and birds..... Oh My!

With increasing global restrictions on antimicrobials, increased demand for poultry products and a shift in consumer preferences, the poultry industry must adapt to a rapidly changing world. The growing scientific field of nutrigenomics offers applied solutions to these challenges through identified links between nutrition, health and genetic expression in the birds; thereby offering producers holistic solutions in a world of limiting resources and growing demand.

Omega-3 fatty acids have gained attention recently for their potential nutrigenomic applications in breeder birds towards improved reproductive performance and the development of robust offspring. Although often used in layer and broiler diets to produce value-add food products (eg. Eggs), Omega-3 fatty acids are not commonly incorporated in the diet of breeder stock. Turns out, these birds could be missing out on some key benefits, and so could their chicks. Omega-3 fatty acids are well known for their ability to modulate inflammatory responses; a response which may be passed on to the offspring through an epigenetics. Furthermore, omega-3 fatty acids have been shown to exhibit reproductive benefits in females and males of various species, suggesting potential production benefits at the breeder level.

Dr. Elijah Kiarie (University of Guelph) is currently investigating the potential link between omega-3 in the breeder bird diets and the success of the offspring. Through an ambitious research initiative, he aims to identify the effects of feeding linPRO, as a source of dietary omega-3 fatty acids, to broiler and layer breeders on: reproductive efficiency of the breeders, embryonic survival and hatchability, progeny robustness including health, performance, livability, carcass quality, gut health and bone health. Preliminary information on the digestibility of linPRO for breeder stock was presented last year at the 2018 IPPE Conference (Atlanta, GA) and the PSA Meetings (Houston Texas), reporting impressive energy

availability and nutrient digestibility data from this specialty feed. Since then, the omega-3 feeding programs have continued with both breeder and progeny evaluations underway, and expected to be complete by early summer 2019. Dr. Kiarie is confident that the exciting new data collected over this past year will be accepted for presentation at the 2019 PSA Meetings, to be held in Montréal, Québec.

The poultry industry shift towards applications of nutrigenomics is on-going, ensuring the health of the birds and sustainability of the industry. Scientific collaborations are enabling a deeper understanding of the important relationship between animal nutrition, health and performance. Thanks to continued research efforts, such as the omega-3 initiative of Dr. Kiarie and The University of Guelph, the poultry industry can replenish their toolbox when resources are limiting and maintain consumer support for the products they produce.

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