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Microbiome Profiling Technique for Improving Commercial Turkey Production (20140230, Dr. Timothy Johnson)

Technology No. 20140230

Enhances Feed Conversion Efficiency, Prevents Disease in Turkeys and Promotes Growth

An optimal probiotic formulation fed to turkeys uses the latest microbiome profiling techniques to prevent disease, promote growth and increase feed conversion efficiency. The novel defined microbial community contains probiotic bacterial strains targeted at commercial turkeys, and can be administered as an additive to feed or water. This informed, “rationally designed” approach identifies the best strains for the desired outcome and features novel, turkey-specific bacteria as well as a unique, refined method of systematic application (time-phased and microbe-phased).

Alternative to Turkey Antibiotics Target Performance

The poultry industry seeks technologies to increase weight gain, particularly in the absence of routine antibiotic use. While antimicrobial/antibiotic alternatives exist for the broiler chicken industry, they are lacking for the commercial turkey industry. Moreover, many alternatives to antimicrobials target pathogen reduction, not performance. Probiotics offer a viable and natural means to achieve optimized feed efficiency (or feed conversion ratios), but animal microbiomes are often poorly described and understood. This unique panel of turkey gut microbes, when fed to turkeys, will increase weight gain. A thorough, scientific characterization of turkey gut microbiota showed that this set of microorganisms, already found in the gut of healthy turkeys, is superior to other probiotics used in turkeys. Its benefits are likely to be similar in type but of greater magnitude than currently available products.

BENEFITS AND FEATURES:

- Feed or water additive for enhanced weight gain
- Novel bacterial strains with specific applications for turkey
- Strains are “rationally designed” (i.e., specific for turkey as a species)

- Better digestive health and immune health
- Improved feed efficiency and weight gain likely
- Improves value proposition for farmers

APPLICATIONS:

- Poultry husbandry
- Animal feed/feed additive
- Turkey feed conversion efficiency

Phase of Development - Proof of Concept: bacterial panels, culturing protocols and animal dosing regimen completed

Researchers

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Publications

Succession of the turkey gastrointestinal bacterial microbiome related to weight gain
PeerJ, 1:e237
Temporal Relationships Exist Between Cecum, Ileum, and Litter Bacterial Microbiomes in a Commercial Turkey Flock, and Subtherapeutic Penicillin Treatment Impacts Ileum Bacterial Community Establishment
Frontiers in Veterinary Science, 2:56

Interested in Licensing?

The University relies on industry partners to scale up technologies to large enough production capacity for commercial purposes. The license is available for this technology and would be for the sale, manufacture or use of products claimed by the issued patents. Please contact usto share your business needs and technical interest in this commercial turkey probiotic technology and if you are interested in licensing the technology for further research and development.