

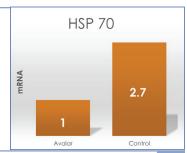
This research allows for real discussions on how to improve performance of birds under stressful situations in broiler and layer situations. Additionally, there is an animal welfare component by improving quality of life for the birds in a simple, measurable, statistically different way with Avalar.

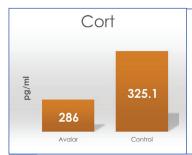
*All numbers are statistically different and reinforce the functionality of Avalar. Lower biomarker levels mean that the birds are experiencing less stress.

HSP 70 Heat Shock Protein 70

Repairs Stress Damaged Proteins

Heat Activated molecular chaperons that maintain the protein homeostasis of the cell. Promote thermotolerance and enhance the ability of the cell to survive oxidative stress.





Cort Corticosterone

Stress Response, Regulates Blood Sugar, Fights Infections

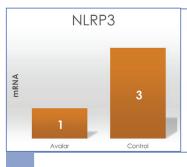
Produced in the Mitochondria where it migrates out of the cell to the bloodstream through passive diffusion

TNF-a Tumor Necrosis Factor Alpha

Cell signaling protein that regulates immune cells.

Can induce fever, apoptosis, inflammation, etc.





NLRP3 NLRP3 Inflammasome

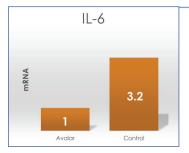
Activated by Oxidative Stress and results in an inflammation response

IL-18 Interleukin-18

Maintains Tight Gap Junctions/ Cell-To-Cell Adhesion

Cell adhesion, nitric oxide synthesis, and chemokine production. induces immune response





IL-6 Interleukin-6

Energy Mobilization, Body Temperature Increase, Acute Phase Response.

Stimulates Energy mobilization to increase body temperature.

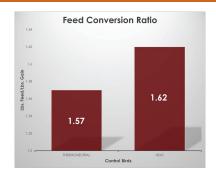
Induce intracellular signaling cascades that give rise to inflammatory cytokine production.

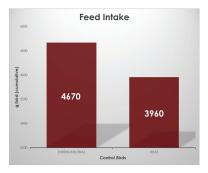
Stimulates acute phase protein synthesis, neutrophil production in bone marrow, supports B Cell production, and regulatory function in T Cells

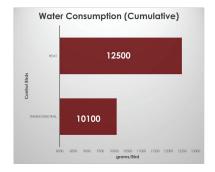
Healthy animals that feel better are more productive. Newly published research from the University of Arkansas has shown that broilers under heat stress eat less, have smaller carcass weights, less woody breast, and higher feed conversions. (As seen immediately below.)





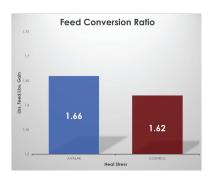




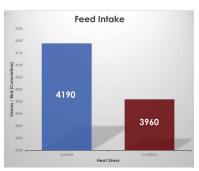


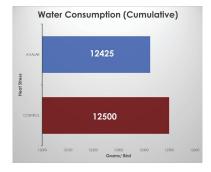
University of Arkansas further explored their findings by conducting a study where the control group was fed the same diet as the treatment birds, with the treatment birds receiving Avalar as per label instructions. Birds were held in a thermoneutral environment (75°F/24°C) until the final 2 weeks of the growing period when the temperature was elevated (95°F/35°C) to induce heat stress. (Results below)



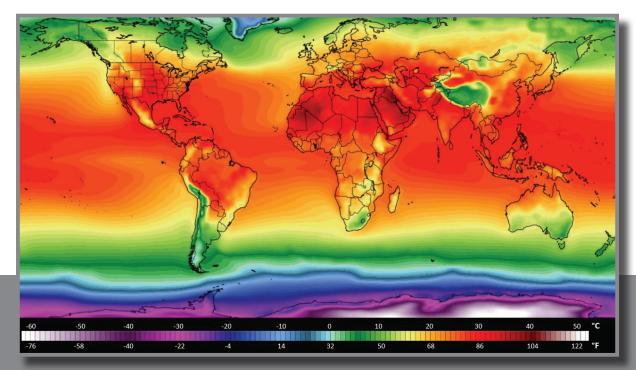








Birds treated with Avalar were able to overcome their environmental conditions to go on to eat and gain more to produce a larger carcass than the controls.



Average Temperature for August 2019 (2 meters above ground/surface level). Source: Climate Reanalyer, Climate Change Institute, University of Maine, USA



The elegant design of Avalar was based on the foundation of biochemical pathways in growth, metabolism, production, and the mitigation of stress. Avalar provides a unique and specific blend of amino acids and trace minerals to supply essential elements necessary to alleviate negative effects of chronic oxidative and metabolic stress providing a multispecies protective effect. Metabolic and chronic oxidative stress results in problems ranging from joint degradation, impaired immunity, lower feed consumption, decreased efficiency, yield, meat quality, and animal welfare concerns.

