

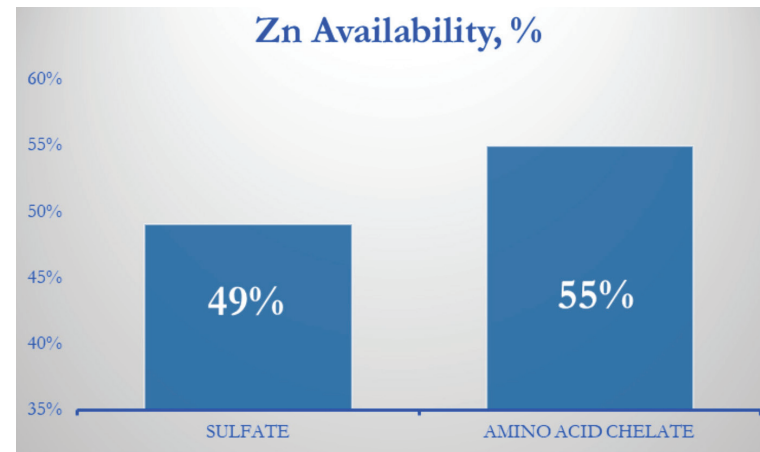


# MOST BIOAVAILABLE AND HIGHLY ABSORBED MINERAL SOURCE

Avalar is a combination of highly bioavailable amino acid chelated minerals. Real amino acid chelates have unique chemistry that allows absorption in the jejunum of the animal (just like singular amino acids) instead of competing for the finite number of receptor sites in duodenum where all other mineral forms are absorbed. This alternative absorption location provides additional opportunities for minerals to cross the gut wall and be utilized by the animal.

In true amino acid chelation, individual amino acids bind to metals and create a stable molecule, protecting the metal from antagonists like iron, molybdenum, sulfates, and mycotoxin binders. This ensures that the “chelate” arrives intact in the jejunum where the amino acid acts as a transporter and pulls the metal across the gut wall and delivers it to tissues within the animal.

**Texas Tech University (2006) Bioavailability of Zinc Forms in Broiler Chickens**



# NUTRITION INSURANCE PROVIDES FOR CONSISTENT PERFORMANCE

Biochemical reactions including the formation of immune factors, hormones, and enzymes all require trace minerals. Healthier animals are bigger eaters and better performers. Nutrition Insurance provided by Avalar delivers more essential trace minerals to the bloodstream of the animal resulting in consistent, improved and more predictable performance.

More than 30 years of researching Amino Acid Chelated Mineral technology has proven to deliver more live animals to market that are heavier. Even with the most precisely formulated diets, amino acid chelated minerals outperformed sulfates and other organic mineral sources.

**A 1% increase in body weight is valued at \$0.04 per bird**  
(Based on 5 lb. bird with \$0.80 per lb. live market)

Research	Increase In Live Weights Over Control Birds
<small>*complete information upon request</small>	
University of Arkansas Study	1.21%
University of Arkansas Heat Study	3.32%
Texas A&M University Study	0.72%
India Trial	5.94%
Mexico Trial	0.44%
Georgia Trial	2.89%
Italy Study	7.25%
France Study	2.63%
IMZ Trial	7.25%
West Virginia University Study	9.19%

# DELIVER MORE LIVE BIRDS TO MARKET

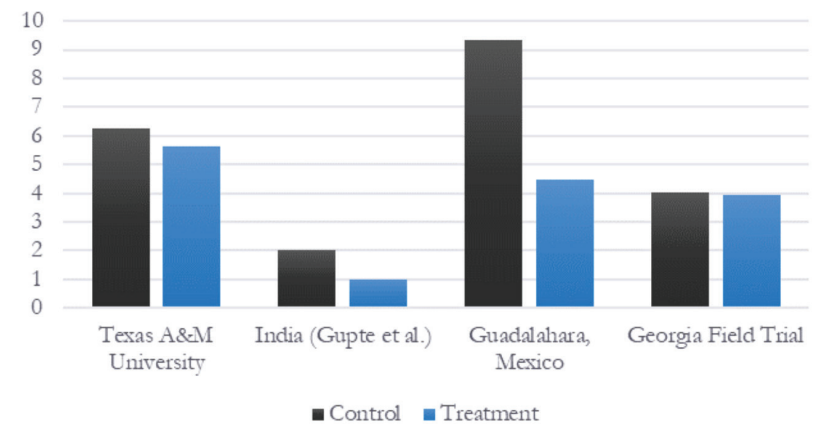
Avalar has a positive impact on health of the birds. Industry studies of conventional birds showed up to a 40% reduction in mortality. An organic industry trial reported 52% reduction in mortality with the implementation of an Amino Acid Chelated Trace Mineral Program.

Delivering 1% more birds to market means \$1,200 more per 30,000 bird house

Field studies have also reported fewer condemned birds. A 1% reduction in condemned carcasses is worth \$0.04 per bird

(Based on 5 lb. bird with \$0.80 per lb. market weight)

### Mortality %

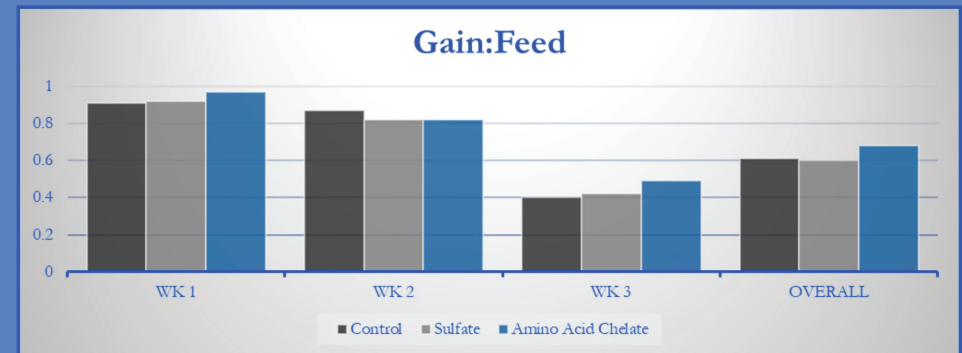


# MORE EFFICIENT PRODUCTION RESULTS IN A SMALLER CARBON FOOTPRINT & IMPROVED SUSTAINABILITY

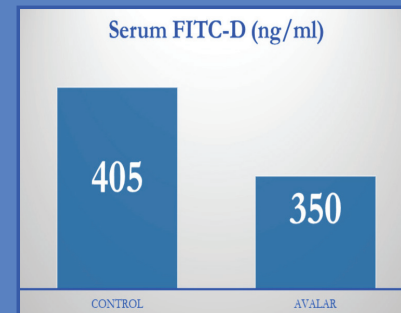
Digestive enzymes require trace minerals to be formed. Increased enzyme production results in maximum utilization of feedstuffs. Extracting maximum benefit from feed keeps birds healthy, achieving their genetic potential. Minerals also help keep the digestive system in better condition, aiding in nutrient utilization and reduction of leaky gut syndrome. Elevated serum FITC-D levels indicate an increase in gut permeability.

A change of 0.01 F:G at \$325 per ton of feed is a difference of \$0.008 cents per 5 lb bird.

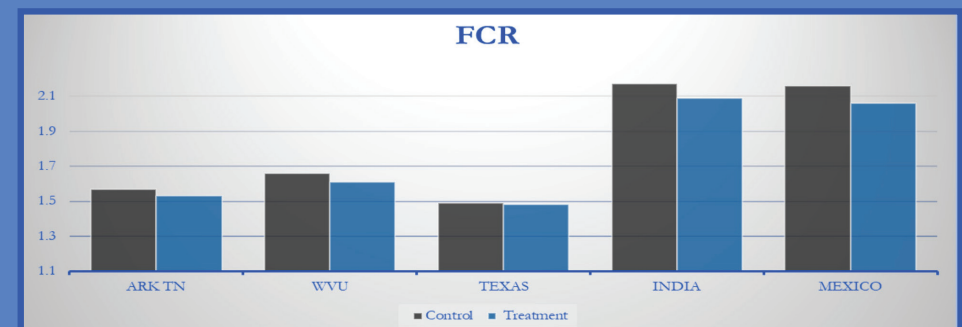
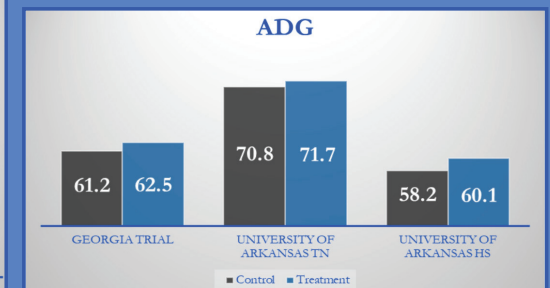
When pennies count, even this small difference demands consideration, especially if it is predictable.



(Kommera et al., 2006)



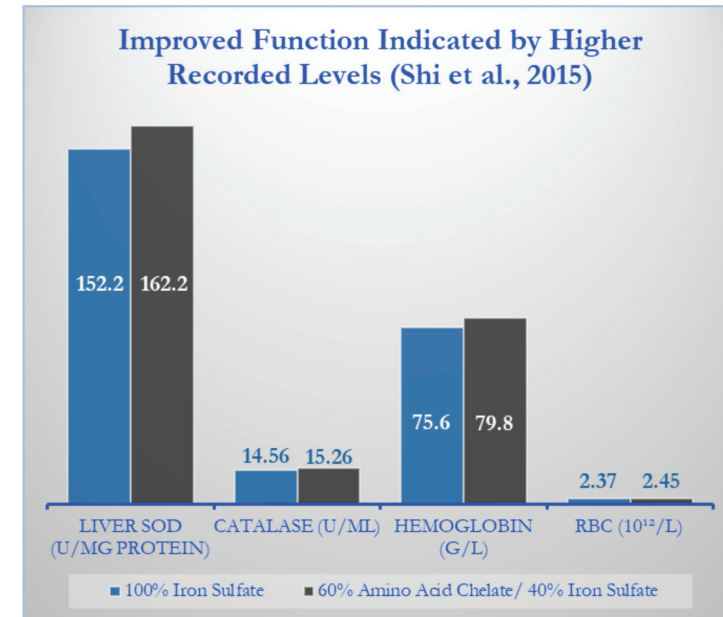
(University of Arkansas (2018))



# TRACE MINERALS ARE AN ABSOLUTE REQUIREMENT FOR IMMUNITY

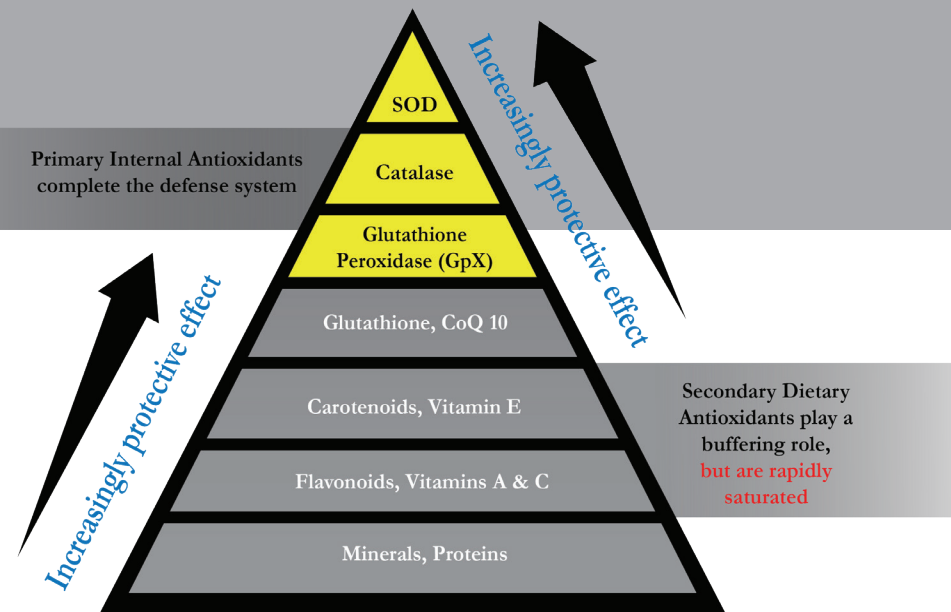
The interrelationship of micronutrient physiology, immunoglobulin production and its relationship to infectious and non-infectious diseases is one of the best reasons to use Avalar. Most of the cellular responses are controlled by enzyme systems that have a trace element at their core. Animals must respond to their environment immunologically by producing b-cells, t-cells, IgG1, IgG2 and others that are trace mineral dependent. Vaccine response is improved with proper mineral nutrition.

A disease challenge study in France was conducted where chicks were introduced to Infectious Bronchitis and Newcastle Disease. Birds were then either supplemented with Avalar or not. Birds treated with Avalar had a statistical increase in antibody development. Interestingly, Control birds had high incidence of Picage while treated birds had none.



# AVALAR REDUCES OXIDATIVE STRESS

When energy is burned, mitochondria release free radical oxygen. The biochemical pathway that clears the system is enzymatic and is mineral dependent. Avalar contains the ingredients required to build Superoxide Dismutase (SOD) that converts reactive oxygen to hydrogen peroxide that is then converted to water and oxygen by Catalase and Glutathione Peroxidase, thus relieving the animal from damaging reactive oxygen species.



# MEASURABLE IMPROVEMENT IN ANIMAL WELFARE WITH AVALAR

## Model Code of Practice for the Welfare of Animals, Domestic Poultry

- Accessible food and water
- Freedom to move, stand, sit, and lie down
- Visual contact with other birds
- Protection from the weather
- Prevention of disease and injury and rapid response should issues occur

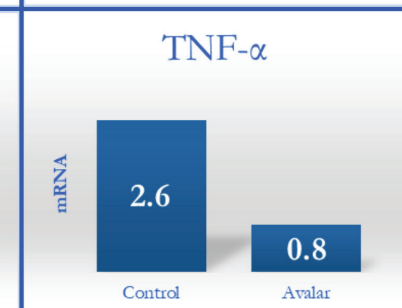
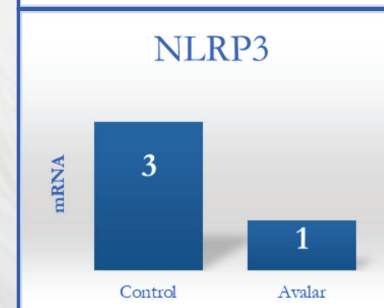
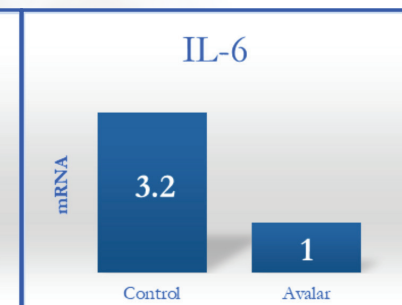
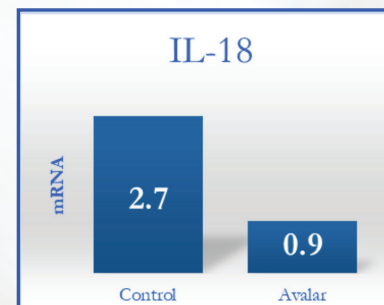
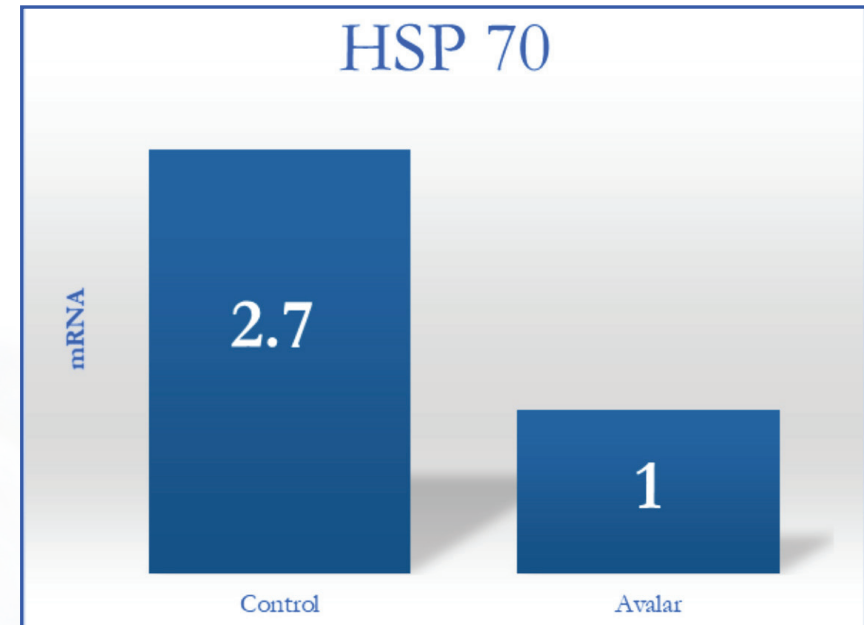
Research from the University of Arkansas concludes that the use of Avalar significantly reduces heat stress in birds as measured with HSP 70. A reduction in HSP 70 shows a reduction of physiological stress. University of Arkansas study further explored other inflammatory biomarkers and found statistically significant reductions in NLRP 3, TNF- $\alpha$ , IL-18, and IL-6 in birds treated with Avalar.

## Heat Shock Protein 70

- Standard Indicator Of Heat Stress In Multiple Livestock Species
- Function Is To Repair Stress Damaged Proteins
- Measures Thermotolerance Of Animal At Cellular Level

## Five Freedoms of Animal Welfare

- Freedom from Hunger and Thirst.
- Freedom from Discomfort.
- Freedom from Pain, Injury or Disease.
- Freedom to Express Normal Behavior.
- Freedom from Fear and Distress.



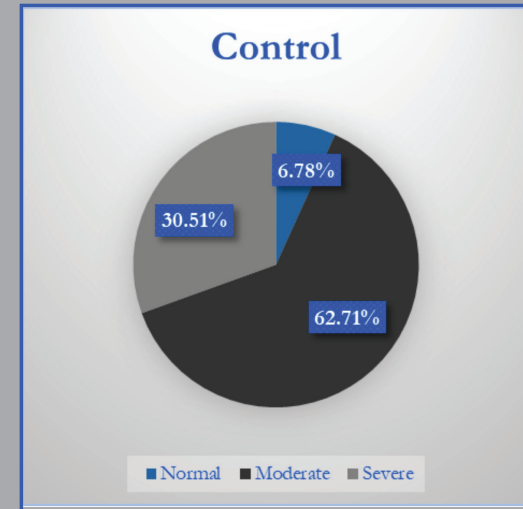
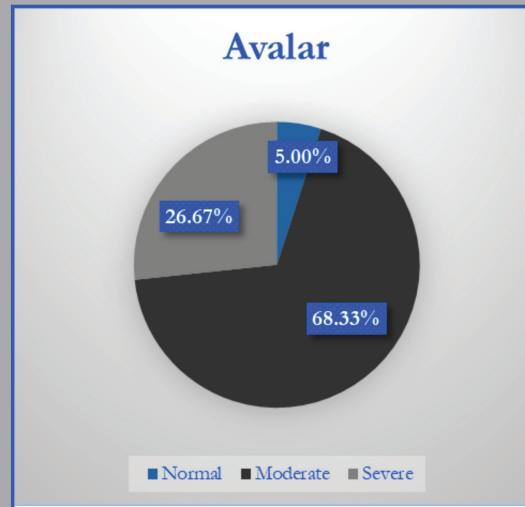
# MUSCLE MYOPATHIES DECREASED BY AVALAR

The latest research from University of Arkansas has shown that birds receiving Avalor liquid had a reduction in severe muscle myopathies (woody breast) by nearly 4 points or 14%.

Further research from Texas A&M University found that a combination of Avalor and Lipex resulted in 6.67% fewer birds having severe Woody Breast.

Fillets with woody breast are docked 50% (or more). A 1% decrease in woody breast prevalence results in \$0.004 and a 4% decrease equates to \$0.016 per bird.

(Assumed: 5 lb. bird with \$0.80 per lb. market weight and 20% live weight breast yield)



## VERSATILITY

- Dry or Liquid Application for a variety of poultry sectors and species
- Targeted nutritional success begins at the molecular level

When pennies matter, take advantage of the benefits afforded by Avalor to achieve an ROI in excess of 4:1, it all adds up to improved profitability and animal welfare.

*\*Individual Amino Acid Chelated Minerals also available*

P/N: L001-201-9464G

### FEEDING PROGRAM

**Inclusion Rate:**  
**1 lb. (0.454 kg) per ton of feed**

<p><b>GUARANTEED ANALYSIS</b></p> <p>Zinc, min.....2700 ppm  Manganese, min.....800 ppm  Iron, min.....500 ppm  Copper, min.....1990 ppm  Cobalt, min.....26 ppm  Magnesium, min.....0.91%  Potassium, min.....0.75%  Calcium, min.....0.1%</p>	<p><b>INGREDIENTS:</b></p> <p>Zinc Amino Acid Chelate, Manganese Amino Acid Chelate, Iron Amino Acid Chelate, Copper Amino Acid Chelate, Cobalt Amino Acid Chelate, Magnesium Amino Acid Chelate, Potassium Amino Acid Complex, Calcium Amino Acid Chelate, Vegetable Oil, Soy Hulls.</p>
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www.tracermaterials.com  
Cimarron, Kansas 67835  
620-865-2041

P/N: L001-201-9464G

### WATER TREATMENT PROGRAM

**At the start of each week (Day 1, 7, 14, etc.) add one gallon to drinking water per 30,000 birds (1:256 dilution)**  
**Add an additional gallon 3 days prior to harvest**

<p><b>GUARANTEED ANALYSIS</b></p> <p>Zinc, min.....1800 ppm  Manganese, min.....530 ppm  Iron, min.....330 ppm  Copper, min.....130 ppm  Cobalt, min.....18 ppm  Magnesium, min.....0.6%  Potassium, min.....0.5%  Calcium, min.....0.075%</p>	<p><b>INGREDIENTS:</b></p> <p>Zinc Amino Acid Chelate, Manganese Amino Acid Chelate, Iron Amino Acid Chelate, Copper Amino Acid Chelate, Cobalt Amino Acid Chelate, Magnesium Amino Acid Chelate, Potassium Amino Acid Complex, Calcium Amino Acid Chelate, Water, Potassium Sorbate.</p>
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**A multifunctional formulation that has been globally researched by Universities and poultry companies.**

**Avalar use has been proven to increase growth rates and performance while reducing oxidative stress, muscle myopathies, mortality, and the effects of heat stress.**



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(620) 865-2041