

**Equalize™**  
Poultry



FURST-MCNESS COMPANY





# MYCOTOXINS IN POULTRY

Feed cost represents about 70% of all expenses in poultry production. For this reason, the consistency of the ingredients and the cost-effectiveness of the diets are key to profitability. Nutritional stressors in the diet, such as mycotoxins, often produce deleterious effects in the birds. Mycotoxins not only reduce growth performance, but also impact feed efficiency, and therefore the cost-effectiveness of diets. Mycotoxins also tend to weaken the immune system of the birds, rendering them more susceptible to disease and environmental challenges.

Poultry are highly susceptible and frequently exposed to several types of mycotoxins. The mycotoxins that pose the greatest risk in poultry are: Aflatoxin, Ochratoxin, Trichothecenes (DON, T2), Fumonisin and Zearalenone. Mycotoxins produce a broad range of harmful effects in birds such as reduction in nutrient absorption, increased incidence of disease due to immuno suppression, damage to vital organs, interference with reproductive capacity, and in some extreme cases, increased mortality. All levels of mycotoxins can be considered hazardous, because even lower levels can affect the digestive tract of the birds and impair their growth, productivity and health.

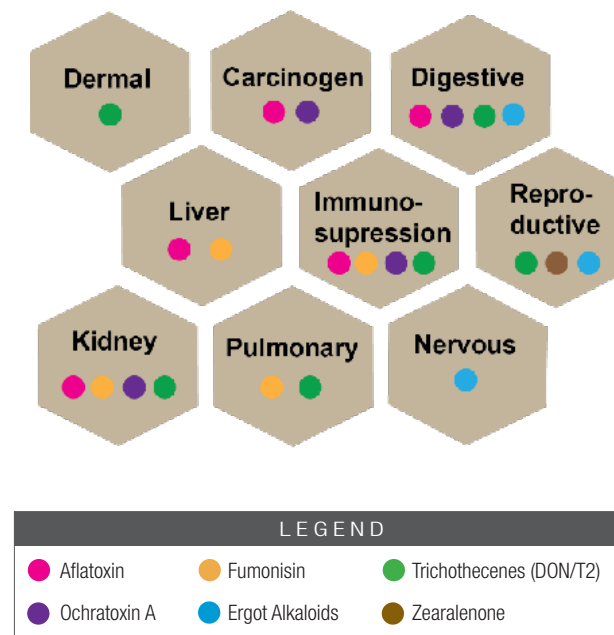
## Interactions Between Mycotoxins

Mycotoxin Combination		Types of Interaction
DON	T2 Toxin	Synergistic
DON	Aflatoxin	Additive
T-2 Toxin	Ochratoxin A	Additive/Synergistic
Fumonisin B1	Moniliformin	Additive
Fumonisin B1	T-2 Toxin	Additive
Aflatoxin	Ochratoxin A	Synergistic
Aflatoxin	T-2 Toxin	Synergistic

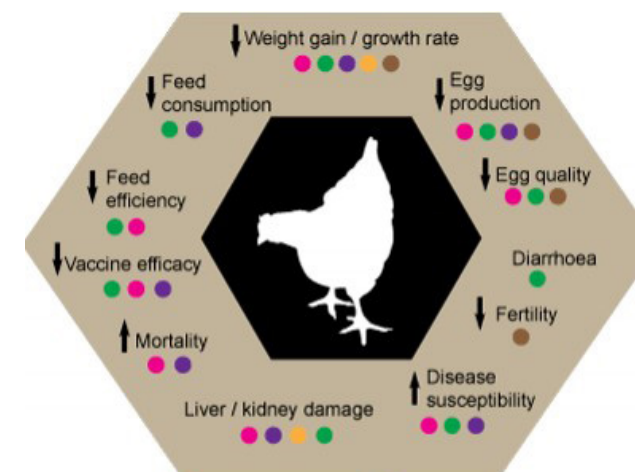
## Effects of Mycotoxins

Many studies have shown that mycotoxins may affect multiple organ systems of the birds, thus severely impairing their growth, production performance and health. This strategy should utilize both adsorbent capability, dissolution and degradation in conjunction with nourishing components for allowing greater access to critical nutrients and energy.

## Impact of Mycotoxins on Organ Systems



## Mycotoxin Effects in Poultry





**EQUALIZE™ POULTRY**  
EQUALIZE™ POULTRY is specifically designed for use in poultry to achieve and maintain the production goals of poultry farms during health or feed quality related challenges.

EQUALIZE™ POULTRY contains direct-fed microbials, a live proprietary strain of yeast (*Saccharomyces cerevisiae*), yeast cell walls, enzymes, and carefully-selected polar clays, together with exclusive phytonutrients and prebiotics.

The unique and patented combination of nutritional supplements included in EQUALIZE™ POULTRY work synergistically to maintain performance of birds when consuming feed of compromised quality.

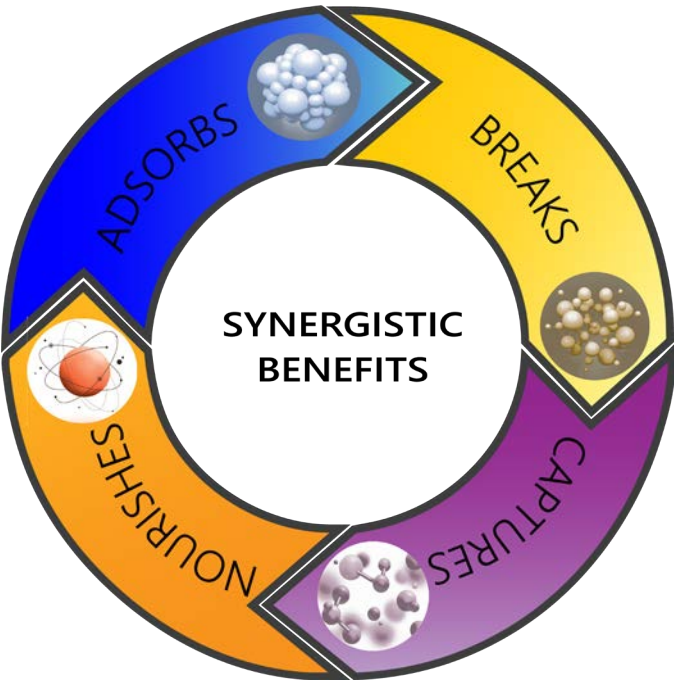
Furst-McNess proprietary phytonutrients have been shown in research trials to support bird's growth and reproductive performance, increase feed intake and improve overall gastrointestinal health. Specific phytogenic compounds included in EQUALIZE™ POULTRY have also been proven to reduce the ammonia excretion in birds, which further aids in alleviating some health problems commonly observed in commercial poultry flocks.



Summary of a Research Trial on Performance of Broilers with Different Energy Levels with the Addition of Proprietary Phytonutrients

Production Parameter	Low-Energy Diets Control	Low-Energy Diets + Equiv. EQUALIZE™ Poultry	High-Energy Diets Control	High-Energy Diets + Equiv. EQUALIZE™ Poultry	SE
Phase 1 (1-14 Days)					
BWG (g)	398 <sup>c</sup>	411 <sup>b</sup>	419 <sup>b</sup>	431 <sup>a</sup>	4
FI (g)	508	514	526	538	8
FCR (g)	1.276	1.251	1.255	1.248	0.023
Overall (1-28 Days)					
BWG (g)	147 <sup>b</sup>	1,499 <sup>ab</sup>	1,505 <sup>ab</sup>	1,523 <sup>a</sup>	15
FI (g)	2,208	2,165	2,194	2,183	20
FCR (g)	1.502	1.444	1.458	1.433	0.02
Nutrients Digestibility					
Dry Matter (%)	74.95	77.43	75.47	77.70	1.00
Nitrogen (%)	64.90 <sup>b</sup>	66.44 <sup>ab</sup>	65.78 <sup>ab</sup>	67.87 <sup>a</sup>	0.85
Energy (%)	75.63	76.16	74.61	77.06	0.93
Effects on Blood Profiles and Gas Emissions in Excreta					
Total Cholesterol (mg/dl)	117.80 <sup>a</sup>	106.8 <sup>b</sup>	118.90 <sup>a</sup>	114.1 <sup>ab</sup>	3.50
Amonia NH <sub>3</sub> (ppm)	38.80 <sup>ab</sup>	34.80 <sup>b</sup>	42.90 <sup>a</sup>	40.30 <sup>a</sup>	1.52

<sup>1</sup> ME Phase 1: 2,950 Kcal/Kg and ME Phase 2: 3,100 Kcal/KG. <sup>2</sup> ME Phase 1: 3,050 Kcal/Kg and ME Phase 2: 3,200 Kcal/Kg.  
<sup>3</sup> SE: Standard Error. <sup>ab</sup> SIGNIFICANTLY DIFFERENT (*P*<.05).



**ADSORBS** mycotoxins that are polar and able to electrostaically bind to mineral elements.

**BREAKS** the ring-like structure of some mycotoxins making them less toxic and more prone to get captured.

**CAPTURES** and degrades non-polar mycotoxins and metabolites facilitating their excretion.

**NOURISHES** the birds during stress conditions by allowing greater access to critical nutrients and energy. The proprietary phytonutrients, prebiotics and probiotics included in EQUALIZE™ POULTRY protect and promote the saprophytic microbiome of the bird's gut and help diminish the energy drag of gut permeability, immune suppression and compromised feed intakes caused by mycotoxin containgaminated diets.



Summary of a Research Trial on Production Performance and Egg Quality in Layer Hens When Given Different Levels of Proprietary Phytonutrients

Parameters	Control <sup>2</sup>	Equiv. EQUALIZE™ Poultry 1 lb/Ton	Equiv. EQUALIZE™ Poultry 2 lb/Ton
Production Parameters			
Body Weight Gain (g)	200.3 <sup>b</sup> ± 14.7	246.2 <sup>b</sup> ± 15.0	267.8 <sup>a</sup> ± 13.3
Feed Consumption (g)	3263.6 <sup>b</sup> ± 4.5	3328.0 <sup>a</sup> ± 4.5	3136.0 <sup>c</sup> ± 25.9
Feed Conversion Ratio	7.25 <sup>b</sup> ± 0.03	5.77 <sup>ab</sup> ± 0.02	5.75 <sup>a</sup> ± 0.09
Av. Egg Production (%)	38.2 <sup>c</sup> ± 1.9	49.0 <sup>ab</sup> ± 1.3	52.0 <sup>a</sup> ± 1.3
Av. Egg Mass	16.12 <sup>c</sup> ± 3.1	20.59 <sup>ab</sup> ± 6.8	20.26 <sup>ab</sup> ± 8.7
Age at Sexual Maturity (days)	167.7 <sup>a</sup> ± 51	166.0 <sup>a</sup> ± 3.0	151.6 <sup>b</sup> ± 3.0
Egg Quality Parameters			
Egg Weight (g)	46.98 ± 0.35	47.44 ± 0.47	46.98 ± 0.22
Egg Shape Index	70.03 <sup>c</sup> ± 0.72	71.50 <sup>bc</sup> ± 0.75	73.54 <sup>ab</sup> ± 1.03
Yolk Height (mm)	16.59 <sup>c</sup> ± 0.25	16.97 <sup>bc</sup> ± 0.23	17.35 <sup>ab</sup> ± 0.25
Haugh Unit	81.07 <sup>b</sup> ± 1.59	83.29 <sup>ab</sup> ± 1.85	86.33 <sup>a</sup> ± 1.81
Yolk (%)	31.09 <sup>ab</sup> ± 0.55	29.90 <sup>bc</sup> ± 0.46	29.13 <sup>c</sup> ± 0.63
Albumin (%)	59.47 <sup>ab</sup> ± 0.78	60.71 <sup>b</sup> ± 0.63	61.20 <sup>b</sup> ± 0.72
Shell Weight (g)	4.41 ± 0.12	4.42 ± 0.15	4.53 ± 0.12

<sup>1</sup> Mandarah laying hens treated from week 16 to week 28.    <sup>ab</sup> Significantly different (P<0.05).

Effect of Reproductive Performance of Broiler Breeders Fed Specific Prebiotic (MOS) Included in EQUALIZE™ POULTRY

	Control <sup>1</sup>	Equivalent of EQUALIZE™ Poultry 2 lb/TON
Egg Production (%)	74.4	77.88
Hatchability (%)	88.5 <sup>b</sup>	90.75 <sup>a</sup>
Infertile Eggs (%)	5.9 <sup>a</sup>	4.7 <sup>b</sup>
Dead-in-Shells (%)	5.6 <sup>ab</sup>	4.55 <sup>b</sup>

<sup>1</sup> Cobb 500 Breeder at 40 weeks of age. Basal diet additives and antibiotic free.  
<sup>ab</sup> Significantly different (P<0.05).

RESEARCH INDICATES THAT EQUALIZE™ POULTRY

- Maintains feed intake and growth rate in birds
- Sustains feed conversion and production efficiency
- Boosts egg quality (egg shape index, yolk height, Haugh unit, shell weight)
- Supports fertility and hatchability in breeders
- Decreases HDL cholesterol
- Reduces ammonia emissions



FEEDING DIRECTIONS

Recommended EQUALIZE™ Poultry Inclusion  
Based on Feed Quality Risk (Lb./Ton)

BROILER CHICKENS

Phase	Maintenance Level	Poor Feed Quality Level
Starter	1.5	2.5
Grower	1	2
Finisher	0.5	1

LAYERS

Phase	Maintenance Level	Poor Feed Quality Level
Pullet	1	1.5
Pre-Layer	1.5	2
Layer	1	2

TURKEYS

Phase	Maintenance Level	Poor Feed Quality Level
Brooding	1.5	3
Grow out	1	2

BREEDERS

Phase	Maintenance Level	Poor Feed Quality Level
Breeders	2	3

DUCKS

Phase	Maintenance Level	Poor Feed Quality Level
All	2	3

GESE & GAME BIRDS

Phase	Maintenance Level	Poor Feed Quality Level
All	1	2





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