

# Novin<sup>®</sup> L

## Stress resilience delivered in drinking water

Even with best practices in place, modern poultry production routinely presents birds with exposure to multiple toxins, pathogens, and other stressors.

These metabolic challenges pose nutritional, health, performance and efficiency risks, and often damage or impair the very systems that serve as birds' defense against them.



- **Mycotoxins, in particular, are widely prevalent in many feedstuffs. Even low-level chronic exposure can have a significant economic impact.**
- **Stacking exposure to multiple toxins, infectious agents, and/or environmental stressors can synergistically amplify negative outcomes: 1 + 1 > 2.**
- **While inflammation is a key defense response, dysfunctional anti-inflammatory systems can result in excessive or extended inflammation, damaging tissues and diverting significant amounts of energy.**
- **There are metabolic costs and associated oxidative damage inherent in activation of liver detoxification processes.**

### Supporting Natural Defenses During Feed and Environmental Stress

- ✓ Minimize actual absorption of toxins and infectious agents;
- ✓ Enhance and speed toxin clearance;
- ✓ Support natural immune function and anti-oxidant activity;
- ✓ Modulate inflammation.

*Management options include use of products designed to support physical integrity and function of the gut lining, liver, kidney, and immune system, as well as ingredients that directly impact ingested toxins.*

### Benefits of Water Treatments

- 💧 Stressed birds may reduce feed intake, but will maintain water consumption;
- 💧 Drinking water treatments offer greater timing and application flexibility than feed additives;
- 💧 Treatments can be added to water at the first sign of need – without waiting on feed reformulation and manufacture.

### Spotlight on mycotoxins

#### Impacting Every Bird, Every Day

- ✓ Toxicity in liver and kidney
- ✓ Intestinal damage
- ✓ Compromised immune function
- ✓ Inflammation
- ✓ Oxidative stress
- ✓ Altered reproductive function

#### Dataset of over 2,000 Farm Samples

- ✓ 100% contained mycotoxins;
- ✓ 97% indicated exposure to two or more;
- ✓ Half contaminated with 6 or more!

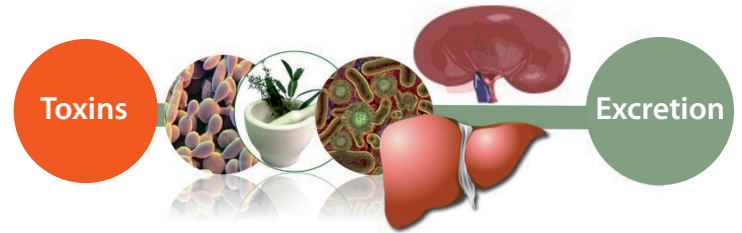
#### Informed Management with Myco-Marker<sup>®</sup>

Innovad's unique, patented biomonitoring service combines blood spot testing with feed analysis to directly measure actual on-farm exposure.

# Novin<sup>®</sup> L: Multi-faceted stress management

Novin<sup>®</sup> L is scientifically formulated to provide a synergistic complement of select plant extracts and bioactives, yeast cell wall components, and natural antioxidants. Its liquid form is unique in its product class, allowing simple and efficacious delivery through drinking water.

Recommended application is 0.75 – 1.50 ml/L of drinking water for ongoing challenges, and 0.5 to 1.0 ml/L for 5 to 7 days as supportive treatment during critical phases of production.

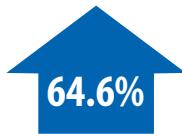


## Observed outcomes after inclusion of Novin<sup>®</sup>

Pen study, 1000 commercial broilers, 50 birds/pen, Control vs Novin  
FOLD CHANGE OF mRNA GENE EXPRESSION FOR KEY BIOMARKERS

### ANTIOXIDANT BIOMARKER

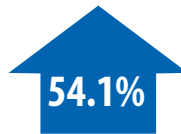
Glutathione Peroxidase



p=0.01

### GUT BARRIER BIOMARKER

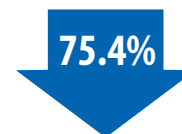
Occluden Proteins



p=0.03

### INFLAMMATION BIOMARKER

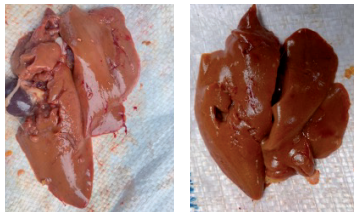
Tumor Necrosis Factor Alpha



p=0.03

### COMMERCIAL LAYER FARM

Before After



#### LIVER

Novin<sup>®</sup> L  
0.5 ml/L  
x 5 days



#### INTESTINE

Novin<sup>®</sup> L  
0.5 ml/L  
x 5 days



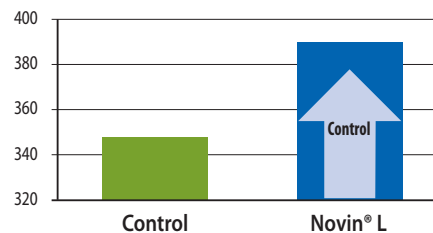
#### REPRO TRACT

Novin<sup>®</sup> L  
0.5 ml/L  
x 15 days

### COMMERCIAL BROILER OPERATIONS

#### Production efficiency

(g ADG X % Liveability)/(FCR X 10)



#### Novin<sup>®</sup> L

##### Ration Change 1

0.5 ml/L  
6-8 hr/day  
X 5 days

##### Ration Change 2

1.0 ml/L  
6-8 hr/day  
X 5 days



Control

Targeted  
Novin<sup>®</sup> L Use

### To learn more

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