

Novin® P: Broilers

A multi-faceted approach to optimizing feed value

Even the best-formulated and properly mixed rations routinely deliver unwelcome toxic substances alongside desired nutrients. Extensive testing shows that mycotoxins are widely prevalent in feeds, potentially bringing health, performance, and efficiency challenges to every bird, every day.



- ➔ Research shows even low-level, chronic exposure can have a significant economic impact.
- ➔ Influence of multiple mycotoxins is typically synergistic; 1+1>2.
- ➔ Some of the most common toxic compounds have not been monitored historically, due to technical limitations in testing for today's "emerging mycotoxins."

Dataset of over 2,000 farm samples

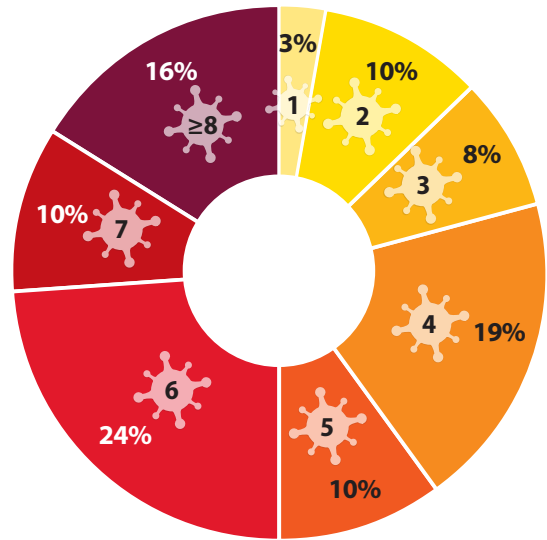
- ✓ 100% exposure to mycotoxins
- ✓ 97% exposure to two or more
- ✓ 50% exposure to 6 or more!

Have we only been monitoring the tip of the iceberg?

Frequency of detection in farm samples	
* Beauvericin	98%
* Enniatin A1	95%
* Enniatin B	92%
* Enniatin B1	92%
Deoxynivalenol	89%
* Enniatin A	87%
Zearalenone	87%
* Alternariol	80%
* Tenuazonic acid	65%
T-2 Toxin	32%
Fumonisin	22%
Ochratoxin A	4%
Aflatoxins	2%

** The most common toxins are rarely tested for!*

Streit et al., 2013. Toxins 5:504-523



Distribution of the number of mycotoxins detected per feed or blood sample.

Mycotoxins impact every bird, every day.

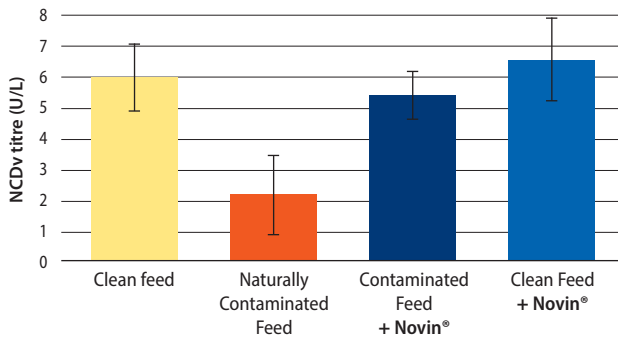
- ✓ Toxicity in liver, kidney
- ✓ Intestinal damage
- ✓ Compromised immune function
- ✓ Inflammation
- ✓ Depressed feed intake



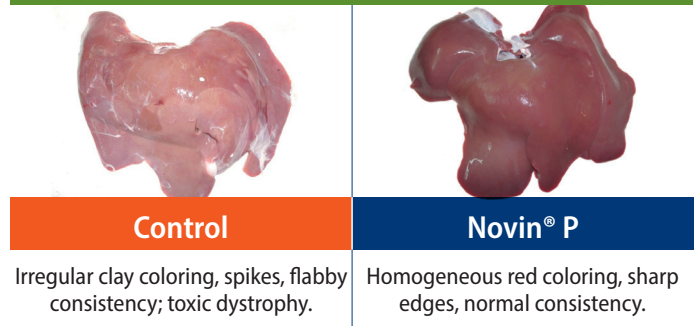
Fewer resources directed towards performance and profit!

Observed outcomes after inclusion of Novin® P

Immune response following Newcastle Disease Vaccine

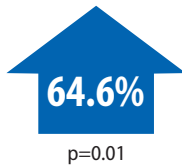


Liver status after receiving mycotoxin-contaminated feed with or without Novin® P

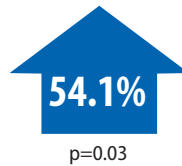


Pen study, 1000 commercial broilers, 50 birds/pen, 0-46 days FOLD CHANGE OF mRNA GENE EXPRESSION FOR KEY BIOMARKERS

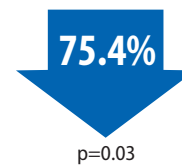
ANTIOXIDANT BIOMARKER Glutathione Peroxidase



GUT BARRIER BIOMARKER Occluden Proteins



INFLAMMATION BIOMARKER Tumor Necrosis Factor Alpha



NEW OPPORTUNITY: Biomonitoring with Myco-Marker™

A unique, under patent protocol for monitoring and tracking ACTUAL ON-FARM MYCOTOXIN EXPOSURE in birds, combining feed and blood analysis.

- ✓ Simple (single blood drops)
- ✓ Comprehensive (36 toxins and metabolites)
- ✓ Direct (eliminate limitations of feed sampling)
- ✓ Only available from **Innovad®**



Feeding rates

Low risk: 1-2 lb/ton;
Moderate risk: 2-3 lb/ton;
High risk: 3-4 lb/ton;

Extreme risk:
 initial 4 1/2-5 lb/ton
 for a short period.

LARGE-SCALE BROILER STUDY

Feed samples indicated low to moderate mycotoxin risk

Day 14 blood test: **Control** – 7 toxins indicated
Novin® – only trace levels of just 2 toxins

Day 45: **BW** ↑ 6.668 vs 6.469 **FCR** ↓ 1.582 vs 1.599

To learn more

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