Novin® P: Layers & Breeders

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."

Have we only been monitoring the tip of the iceberg?

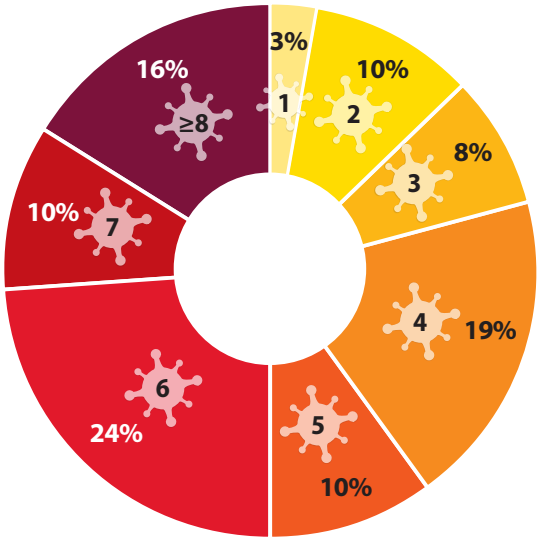
Frequency of detection in farm samples	
* Beauvericin	98%
* Enniatin A1	95%
* Enniatin B	92%
* Enniatin B1	92%
Deoxynivalenol	89%
* Enniatin A	87%
Zearalenone	87%
* Alternariol	80%
* Tenuazonic acid	65%
T-2 Toxin	32%
Fumonisins	22%
Ochratoxin A	4%
Aflatoxins	2%

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

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

Dataset of over 2,000 farm samples

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



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!

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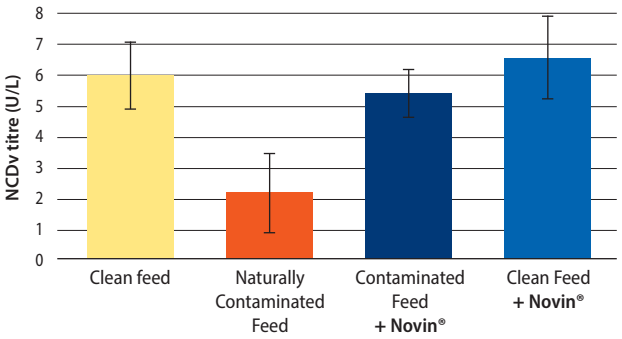
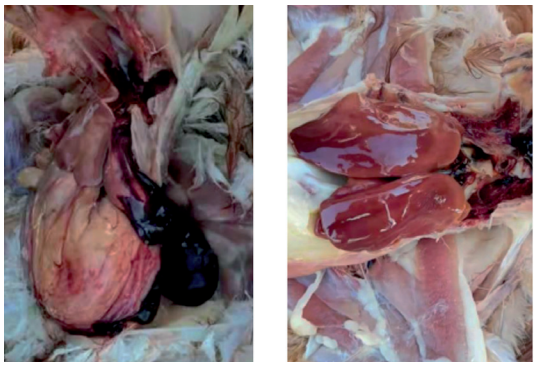
Observed outcomes after inclusion of Novin® P

Immune response following Newcastle Disease Vaccine



Autopsy livers before and after 2 weeks of receiving 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

64.6%

p=0.01

GUT BARRIER BIOMARKER
Occluden Proteins

54.1%

p=0.03

INFLAMMATION BIOMARKER
Tumor Necrosis Factor Alpha

75.4%

p=0.03

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®**

Yeast Products | Plant Extracts | Blended Clays | Anti-oxidants

FIELD TEST, Commercial Layers, suspected mycotoxin concern

- Birds exhibiting vomiting, wet feces, liver rupture
- Initial screening found 3 mycotoxins in feed samples, 7 in blood; Included DON and tenuazonic acid (both associated with intestinal damage)
- **Evaluations 15 days after initiating Novin®:**
  - ✓ NO evidence of DON detected in blood
  - ✓ Tenuazonic acid reduced 93%
  - ✓ Vomiting, loose droppings ceased
  - ✓ **EGG WEIGHT ↑ ~5%**

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.

To learn more

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