

# Novin®

## Multi-faceted approach to optimizing feed value

Even the best-formulated and properly mixed rations routinely deliver unwelcome toxic substances and anti-nutritional factors alongside desired nutrients. Extensive testing shows that mycotoxins, in particular, are widely prevalent in many feedstuffs, bringing nutritional, health, performance, and efficiency challenges on a daily basis.



Typical dairy and beef diets inherently carry heightened mycotoxin risk, thanks to:

- The sheer volume of feed consumed;
- The diversity of potential (probable?) mycotoxin sources:
  - Grains
  - Wet feeds
  - Byproducts

**Mycotoxins have arguably been an overlooked and underestimated risk for ruminant livestock...**

*Creating an overlooked and underestimated opportunity for improvement*

### OVERLOOKED

- Traditionally, Industry has trusted in ruminal deactivation to limit negative impacts to acceptable levels.
- Yet, it is well-established that ruminants readily absorb mycotoxins when:
  - ✓ Feed is heavily contaminated
  - ✓ Animals are stressed
  - ✓ Rumen microbial activity is depressed (e.g., weaning, transition, feedyard placement, metabolic upsets and illness)
  - ✓ Protozoa levels are low (defaunation)
  - ✓ Gut integrity is impaired.
- And, there is an as yet unquantified cost of detoxification activity at the rumen level, due to changes in energy prioritization, microbial populations, end products, extent of digestion, and protein synthesis.

### Best Management Practices for Mycotoxins

- Dilute with uncontaminated feed;
  - Target contaminated feed to less susceptible animals;
  - Feed proven sequestration or deactivation products;
  - Include ingredients with known support functions (i.e., antioxidants).
- Jiang et al., 2021

### UNDERESTIMATED

- Most estimates of mycotoxin exposure are based on feed tests and observation of symptoms. Validity of this information is limited by:
  - ✓ Difficulty in obtaining representative feed samples due to uneven toxin distribution;
  - ✓ Limited range of toxins detected by available lab protocols;
  - ✓ Inability to properly detect 'masked' toxins (bound to other compounds);
  - ✓ Tendency to only evaluate perceived "high risk" feeds, ignoring other contributors.
- There has been heavy reliance on published "safe" threshold limits for individual toxins. These:
  - ✓ Are based on dosages causing acute toxicity; chronic long-term, low-dose exposure is a much more common problem.
  - ✓ Do not allow for the well-documented synergistic effects of co-exposure to multiple toxins, or interactions with other stressors (both common on-farm).

# Myco-Marker™

Cutting-edge technology for directly assessing mycotoxin exposure

**NEW OPPORTUNITY:**

## Biomonitoring with Myco-Marker™

A unique, patented protocol offering the chance to monitor and track **ACTUAL ON-FARM MYCOTOXIN EXPOSURE** in cattle, combining feed and blood analysis.





- ✓ Simple (single blood drops)
- ✓ Comprehensive (36 toxins and metabolites)
- ✓ Direct (eliminate limitations of feed sampling)

### Dataset of over 2,000 farm samples

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

### Myco-Marker: On-farm Examples

Dairy Cows: Known chronic exposure		
	Pre-Novin®	Novin® Day 60 25g/hd/day
TMR	Don (44 ppb) Fumonisin (682 ppb)	DON (459 ppb) Fumonisin (1320 ppb)
BLOOD 	Beauvericin Enniatin B Enniatin B1 Tenuazonic acid	None detected
✓ Accompanied by improvements in apparent starch and NDF digestibility		

Dairy Cows: Reproductive Concerns		
	Pre-Novin®	Novin® Day 60 25g/hd/day
TMR	Don (580 ppb)	DON (950 ppb)
	Fumonisin (682 ppb)	Fumonisin (200 ppb)
	Fumonisin (682 ppb)	Zearalenone (130 ppb)
BLOOD 	DON Alternariol Alternariol monomethyl ether Zearalenone	None detected

## Novin® For cattle experiencing feed-induced stress

- ✓ Proven combination of synergistic ingredients
  - Blended clays
  - Plant extracts
  - Yeast products
  - Antioxidants
- ✓ Demonstrated outcomes
  - Liver and kidney support
  - Reduced oxidative stress
  - Affinity for polar toxins
  - Support of natural immunity and detoxification processes.



### To learn more

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