



## LITCHFIELD ANALYTICAL SERVICES

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Feeds Forages Mycotoxins Soils Plant Tissues Manure Fertilizers Lime Water

## Interpreting Mold Count Results

Molds are normal inhabitants of the environment, growing on both living and non-living plant materials as well as the soil and crop residues. They reproduce through spores, microscopic cell units, that spread by wind, water or contact. They are heat-stable. Some molds produce toxins in the stringy hyphae of their cells. The test for mold spores reveals the number of spores present which have the potential of forming more mold and are thought to be a competitive factor in rumen flora much like certain bacteria are.

It is important to remember that if mold counts are high in a feed it indicates that mold has grown and produced spores and has therefore utilized some of the nutrients in the crop for its growth. The loss of simple sugars and acids that molds utilize is thought to be the primary effect of molds most often overlooked in evaluating a ration containing such materials. The energy available from grain and forage will be severely reduced when mold spore counts are high.

<b>Interpretative Data*:</b>	<b><u>Air Dry Basis Spores per gram</u></b>	<b><u>Comments</u></b>
	< 500,000	Good
	500,000 to 1,000,000	Relatively Safe
	1,000,000 to 2,000,000	Low Caution Discount Energy (* 0.95)
	2,000,000 to 3,000,000	High Caution Discount Energy (* 0.95)
	3,000,000 to 5,000,000	Danger - Dilute With Other Feeds Discount Energy (* 0.95)
	> 5,000,000	Discard - Discontinue Feeding

Risks refer primarily to effects of mold without regard to possible mycotoxin content. Depressed digestibility, feed intake, and / or performance may occur from high mold count levels even without mycotoxins present. Conversely, harmful levels of mycotoxins may be present, even when there is little or no obvious mold present.

\* Table from "Mold & Mycotoxin Problems in Livestock Feeding", Richard S. Adams, Kenneth B. Kephart, Virginia A. Ishler, Lawrence J. Hutchinson, and Gregory W. Roth, Pennsylvania State University, Department of Dairy and Animal Science, Publication Number DAS 93-21, Page 11, 1993.

<b><u>Mold Species</u></b>	<b><u>Color</u></b>	<b><u>Toxins Produced</u></b>
Aspergillus flavus	Yellow-Green	Aflatoxin
Aspergillus nomius	Yellow-Green	Aflatoxin
Aspergillus parasiticus	Yellow-Green	Aflatoxin
Aspergillus pseudotoamarii	Yellow-Green	Aflatoxin
Aspergillus orchraceus	Yellow-Green	Ochratoxin
Fusarium acuminatum	White to Pinkish White	T-2 Toxin, Vomitoxin
Fusarium avenaceum	White to Pinkish White	T-2 Toxin, Vomitoxin
Fusarium crookwellense	White to Pinkish White	Vomitoxin, Zearalenone
Fusarium culmorum	White to Pinkish White	Vomitoxin, Zearalenone
Fusarium equiseti	White to Pinkish White	Fusarochromanone
Fusarium fujikuroi	White to Pinkish White	Fumonisin
Fusarium graminearium	White to Pinkish White	Vomitoxin, Zearalenone
Fusarium poae	White to Pinkish White	T-2 Toxin, Vomitoxin
Fusarium proliferatum	White to Pinkish White	Fumonisin
Fusarium roseum	White to Pinkish White	Vomitoxin, Zearalenone
Fusarium sporotrichioides	White to Pinkish White	T-2 Toxin, Vomitoxin
Fusarium subglutinans	White to Pinkish White	Fumonisin
Fusarium tricinctum	White to Pinkish White	T-2 Toxin
Fusarium verticillioides	White to Pinkish White	Fumonisin
Penicillium expansum	Green to Green-Blue	Patulin
Penicillium verrucosum	Green to Green-Blue	Citrinin, Ochratoxin