Received: **Sampled:**

Rep:

TMR Hygiene Diagnostic

Moisture: 57.12

Dry Matter: 42.88

ROCK RIVER LABORATORY, INC.
AGRICULTURAL ANALYSIS

Protein & Amino Acid	%DM	60d	4 yr
Crude Protein	18.53	16.59	16.15
Total Amino Acid			
Sol. CP, % of CP	53.22	42.80	41.37
NH3-N CP Equivalent			
NH3-N, % of CP			
ADICP	0.07	0.18	0.53
NDICP	0.52	0.52	1.71
ADICP, % of CP	0.37	1.12	3.32
Available CP	18.46	16.41	15.63
Nitrate-N, ppm			
Non-Protein Nitrogen			

Calculated Amino Acids

Lysine, % of CP			
Methionine, % of CP			
Histidine, % of CP			

Minerals & Ash

Ash	7.46	8.54	8.52
Calcium	**0.90**	1.04	1.00
Phosphorus	**0.40**	0.38	0.36
Magnesium	**0.32**	0.38	0.37
Potassium	**1.60**	1.16	1.27
Sodium	**0.41**	0.18	0.18
Sulfur	**0.21**	0.27	0.26
Chloride	**0.65**	0.65	0.68
Aluminum			
Boron			
Copper			
Iron			
Manganese			
Molybdenum			
Zinc			

Carbohydrates	%DM	60d	4 yr
ADF	20.70	19.51	20.04
aNDF	28.78	31.68	31.52
aNDFom	25.91	29.09	28.81
Lignin	3.63	4.52	3.80
Starch	**26.17**	24.76	24.80
Sugar (ESC)	0.77	3.90	4.58
Sugar (WSC)	1.72	5.84	5.88
Glucose			
Fructose			
Sucrose			
Lactose			
Mannitol			
Total Sugar			
Crude Fiber			

Fermentation Products

pH		
Lactic Acid		
Acetic Acid		
Butyric Acid		
Propionic Acid		
Succinic		
Formic		
Total Acids		
Ethanol		
1,2 Propanediol		
1 Propanol		
2,3 Butanediol		
2 Butanol		
2 Propanol		
Fermentation DM Loss		
Ethyl Lactate		
Ethyl Acetate		

Fat	%DM	60d	4 yr
Ether Extract	4.00	3.45	3.46
Total Fatty Acid	2.76	2.65	2.51
Acid Hydrolysis			
	% of FA		
Myristic (C14:0)	0.56	0.56	0.66
Palmitic (C16:0)	25.17	25.95	21.98
Stearic (C18:0)	3.88	3.30	2.53
Oleic (C18:1 c9)	17.83	18.45	17.74
Linoleic (C18:2 c9,12)	30.55	38.54	39.95
Linolenic (C18:3 c9,12,15)	11.79	5.97	9.06
RUFAL	60.18	62.96	66.75

Nutrient Digestion, % of nutrient

tNDFD12			
tNDFD30			
tNDFD48			
tNDFD72			
tNDFD120			
tNDFD240	75.06	72.73	68.50
tNDFD30om			
tNDFD120om			
tNDFD240om	77.39	75.59	71.25
sNDFD24			
sNDFD30			
sNDFD48			
uNDF30, % DM			
uNDF240, % DM	7.18	8.61	10.07
isSD0	**62.09**	45.04	42.31
isSD3	65.67	58.91	58.93
isSD7	**71.47**	78.77	75.67
isSD16	93.17	83.60	82.31
isSD24			
in situ RUP 16h			
RUP intest. dig., % RUP			

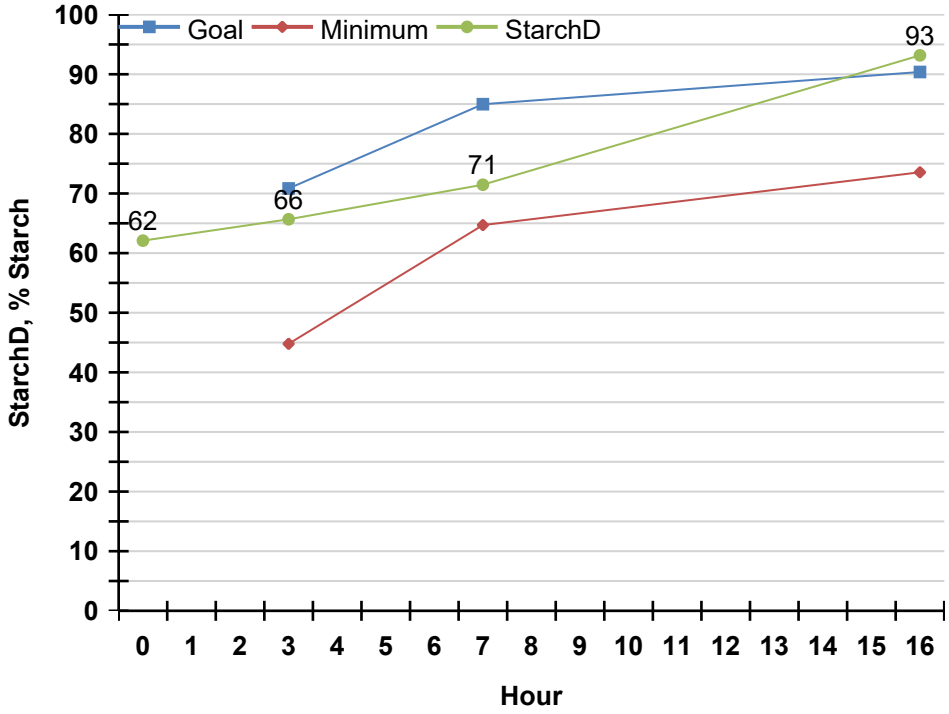
Comprehensive Nutrition Analysis Report

Calculations	%DM	60d	4 yr
Dynamic NDF kd, %/h			
Dynamic Starch Kd, %/h			
RFV			
RFQ			
TTNDFD, % of NDF			
Total Tract Starch Dig			
NFC	41.76	39.60	40.89
DCAD	27.82	-0.58	-0.12
Salt			
RDP %CP			

Energy Calculations	TDN	NEL	NEG	NEM
ADF (PA)	72.21	0.749	0.546	0.833
OARDC Dairy				
NRC2001 Dairy				
Milk2006 Dairy				
NRC2016 Beef				
Milk/Ton, lb				
Beef lb/Ton				

Anti-Nutrients	
Mold (Guidelines)	600,000
Yeast (Guidelines)	2,700,000
DON, ppm	0.48
Aflatoxin, ppb	
Zearalenone, ppb	
Fumonisin, ppm	
T-2, ppb	BDL
Ochratoxin-A, ppb	
Clostridium perfringens	10.0
Enterobacteria	100

Starch Digestion Curve



Mold ID: Penicillium, Mucor

Mycotoxin Report

Representative:

ROCK RIVER LABORATORY, INC.
AGRICULTURAL ANALYSIS

Lab # **Sampled** **Received**
Milk Cow TMR

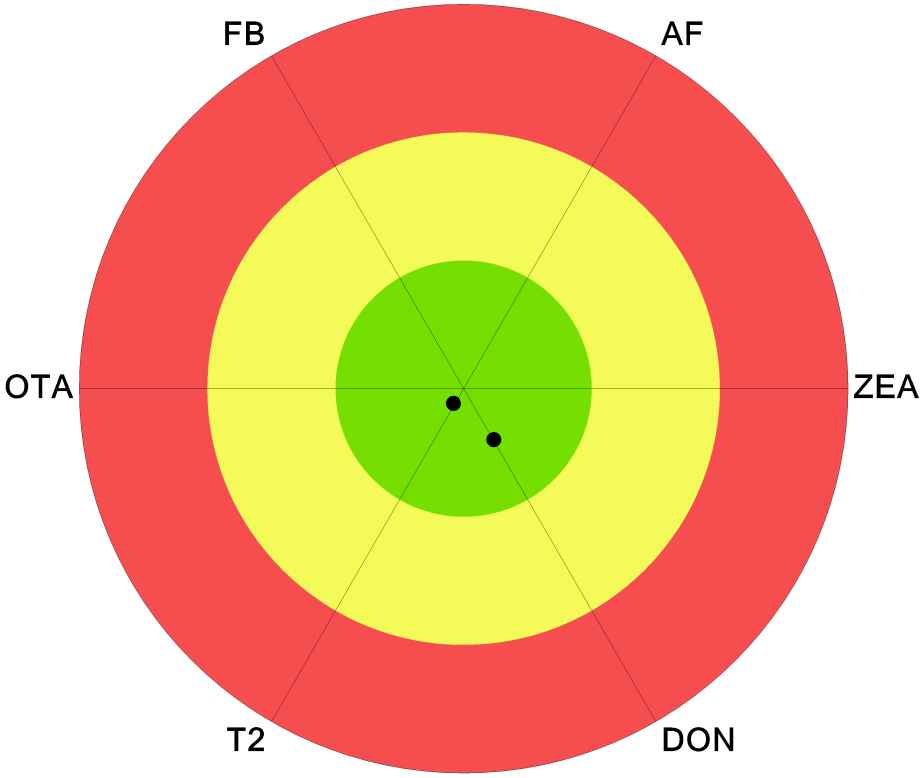
Dry Matter 42.9
Moisture 57.1

Mycotoxin (Total)	Below Concern (Green)	Concern* (Yellow to Red)	Dairy Concern Levels, TMR**
Aflatoxin (AF)			*20 ppb*
Fumonisin (FB)			*2 ppm*
Ochratoxin (OTA)			*5 ppm*
T-2 Toxin (T2)	BDL		*100 ppb*
DON	0.478 ppm		*1 ppm*
Zearalenone (ZEA)			*400 ppb*

*The transition from yellow (middle) ring to red (outer) ring indicates increasing potential severity, mapped from concern level to Rock River Laboratory upper levels

Mycotoxin (Individual)	Result
Aflatoxin B1	
Aflatoxin B2	
Aflatoxin G1	
Aflatoxin G2	
Fumonisin B1	
Fumonisin B2	
Fumonisin B3	
DON	0.478 ppm
3 Acetyl DON	
15 Acetyl DON	
T-2	BDL
HT-2	

BDL - Below Detectable Limit



Note: *The table lists maximum concentrations for the total diet. These values were summarized from the literature cited below and conservatively chosen to represent the lowest values recommended without causing animals harm. Measured toxin is likely not the only type of toxin present in a sample; multiple toxins (including those not measured or masked toxins) may interact to further impact health and performance.*

References

- Whitlow, L.W. and W.M. Hagler, Jr. 2006. Mold and Mycotoxin Issues in Dairy Cattle: Effects, Prevention and Treatment. CA Chapter ARPAS Cont. Ed. Conf. 2006.
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- Adams, R.S. K.B. Kephard, V.A. Ishler, L.J. Hutchinson, and G.W. Roth. Mold and Mycotoxin problems in livestock feeding. Penn State College of Agr. Sciences Coop. Extension article.
- The Mycotoxin Blue Book. 2005. Nottingham University Press, Nottingham, United Kingdom. Duarte Diaz, Editor.