Farm:	**NOVAMEAL BARREL**	Lab ID:	**35735 046**
Desc:	**NOVAMEAL PELLET BARREL**	Sampled:	**07/17/2024**
Account:	**NOVITA NUTRITION, LLC**	Arrived:	**07/30/2024**
		Completed:	**08/06/2024**
		Reported:	**08/16/2024**

Rumen and Intestinal Digestibility Assay of Protein by Freeze Drying
(Multi-Step Protein Evaluation)

DRY MATTER		**% DM**
Residue after oven drying		87.9
PROTEIN	**%** (as received)	**%** (dm basis)
Protein as nitrogen x 6.25 from Leco nitrogen combustion analysis	30.6	34.8
SOLUBLE PROTEIN	**% CP**	**% DM**
1 hour water solubility, filtered on 1.5 micron filter, as-received particle size	22.7	7.9
RUMEN DEGRADABLE PROTEIN	**% CP**	**% DM**
Total protein less rumen undegradable protein recovered by freeze drying	9.4	3.3
RUMEN UNDEGRADABLE PROTEIN	**% CP**	**% DM**
16 hour incubation in rumen fluid from high group TMR ration, as-received particle size, recovered by freeze drying	90.6	31.5
INTESTINAL DIGESTED PROTEIN	**% CP**	**% DM**
Protein that is rumen undegradable but digested in pepsin for 1 hour, then in trypsin, chymotrypsin, amylase, and lipase for 24 hours, as-received particle size	77.8	27
As percentage of Rumen Undegradable Protein 85.7%		
TOTAL TRACT DIGESTED PROTEIN	**% CP**	**% DM**
Total protein less intestinal undigested residue recovered by 1.5 micron filter	87.2	30.3
TOTAL TRACT UNDIGESTED PROTEIN	**% CP**	**% DM**
Intestinal undigested residue, recovered on 1.5 micron filter	12.8	4.5

Analysis performed by modified procedure of D. A. Ross and M. E. Van Amburgh. Rumen undegradable protein is determined on material recovered by freeze drying. Total tract undigested protein is based on material recovered on a 1.5 micron filter.

CUMBERLAND VALLEY ANALYTICAL SERVICES

" Laboratory services for agriculture ... from the field to the feed bunk "

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Lab ID: **35735 046**
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Arrived: **07/30/2024**
Completed: **08/06/2024**
Reported: **08/09/2024**

NOVAMEAL

SAMPLE INFORMATION			
Lab ID:	35735 046	Series:	
Crop Year:	2024	Version:	2.0
Cutting#:			
Feed Type:	MIXED GRAINS		

CHEMISTRY ANALYSIS RESULTS	
Moisture	12.1
Dry Matter	87.9

PROTEINS	% SP	% CP	% DM
Crude Protein			34.8
Adjusted Protein			
Soluble Protein		22.6	7.9
Ammonia (CPE)			
ADF Protein (ADICP)			
NDF Protein (NDICP)			
NDR Protein (NDRCP)			
Rumen Degr. Protein			

FIBER	% NDF	% DM
ADF	38.1	14.2
aNDF		37.3
aNDFom		36.7
NDR (NDF w/o sulfite)		
Crude Fiber	29.0	10.8
Lignin		
NDF Digestibility (12 hr)		
NDF Digestibility (24 hr)		
NDF Digestibility (30 hr)	64.5	24.0
NDF Digestibility (72 hr)		
NDF Digestibility (240 hr)		
uNDF (30 hr)	35.5	13.2
uNDF (240 hr)		

CARBOHYDRATES	% Starch	% NFC	% DM
Silage Acids			
Ethanol Soluble CHO (ESC-Sugar)			
Water Soluble CHO (WSC-Sugar)			
Starch			
Soluble Starch			
Soluble Fiber			
Starch Digestibility (7 hr)			
Crude Fat			
Fatty Acids, Total (%DM)			
Acid Hydrolysis Fat			

MINERALS	
Ash (%DM)	4.61
Calcium (%DM)	0.06
Phosphorus (%DM)	1.17
Magnesium (%DM)	0.47
Potassium (%DM)	1.42
Sulfur (%DM)	
Sodium (%DM)	0.17
Chloride (%DM)	0.22
Iron (PPM)	144.00
Manganese (PPM)	23.00
Zinc (PPM)	79.00
Copper (PPM)	9.00
Molybdenum (PPM)	

FERMENTATION	
pH	
Total VFA	
Lactic Acid (%DM)	
Lactic as % of Total VFA	
Acetic Acid (%DM)	
Propionic Acid (%DM)	
Butyric Acid (%DM)	
Isobutyric Acid (%DM)	
1, 2 Propanediol (%DM)	
Nitrate Ion (%DM)	
Nitrate-Nitrogen, ppm	

ENERGY & INDEX CALCULATIONS	
TDN (%DM)	73.1
Net Energy Lactation (Mcal/lb)	0.76
Adjusted Net Energy Lactation (Mcal/lb)	0.81
Net Energy Maintenance (Mcal/lb)	0.85
Net Energy Gain (Mcal/lb)	0.56
ME (Mcal/lb)	1.27
NDF Dig. Rate (Kd, %HR, Van Amburgh, Lignin*2.4)	4.40
Relative Feed Value (RFV)	
Relative Forage Quality (RFQ)	
Milk per Ton (lbs/ton)	
Dig. Organic Matter Index (lbs/ton)	
ROM (Residual Organic Matter)	
NFC (Non-Fiber Carbohydrates)(%DM)	
NSC (Non-Structural Carbohydrates) ESC (%DM)	
DCAD (meq/100gdm)	-7.0

Additional sample information, submitted documents and lab pictures linked to QR code

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Arrived: **07/30/2024**
Completed: **08/06/2024**
Reported: **08/19/2024**

Report of Amino Acid Analysis

Feed Type: MIXED GRAINS
Dry Matter: 87.9 %

	W/W % As - Received	W/W % Dry Matter Basis
Cysteine	0.61	0.69
Methionine	0.54	0.61
Lysine	0.84	0.96
Alanine	2.11	2.40
Aspartic Acid	1.97	2.24
Glutamic Acid	5.58	6.35
Glycine	1.21	1.38
Isoleucine	1.04	1.19
Leucine	3.52	4.00
Proline	2.73	3.11
Threonine	1.08	1.23
Valine	1.40	1.59
Arginine	1.24	1.41
Histidine	0.69	0.78
Hydroxylysine	0.00	0.00
Hydroxyproline	0.00	0.00
*Lanthionine	0.00	0.00
*Ornithine	0.00	0.00
Phenylalanine	1.41	1.60
Serine	1.46	1.66
*Taurine	0.00	0.00
Tyrosine	1.19	1.35
Tryptophan	0.26	0.29
Total	**28.9**	**32.8**
Crude protein (Nitrogen% x 6.25)	30.6	34.8
AA nitrogen as % of total nitrogen:	**76.0**	

w/w % - grams per 100 grams of sample. Crude Protein is determined by combustion analysis and reported as N% x 6.25. *Taurine, Lanthionine, and Ornithine are non-proteinogenic amino acids. For more information go to www.foragelab.com under Lab Services / Forage and Feed / Amino Acids.

Methods: Acid Hydrolysis - Modification of Gehrke, el. Al,. 1985. (JAOAC 68:811-821) Performic acid preoxidation for sulfur amino acids - Modificaition of Mason et al., 1980 (Z Tierphysio, Tierernahrg u Futtermttelkde 43: 143-146; Elkin and Griffith, 1985 (JAOAC 68:1117-1121). Alkaline hydrolysis: J. Landry and S. Delhaye. 1992. Simplified procedure for the determination of tryptophan of foods and feedstuffs from barytic hydrolysis. J Agr Food Chem 40:776-779.
HPLC methods: Post-column with Ninhydrin Derivatization AOAC: 994.12