

**Minnesota Energy
Buffalo Lake, Minnesota**

IOWA TESTING LAB REPORT NO: 04-0053-5
DATE: 7/27/2004
REC'D DATE: 7/19/2004
METHOD: AOAC; ICP; MOD/AOAC

PROXIMATE ANALYSIS, CALCULATED DE, ME AND NE VALUES FOR SWINE, AND MINERAL AND AMINO ACID CONTENT OF DDGS.¹

Proximate Analysis:

Dry Matter (%)	Crude Protein (%)	Crude Fat (%)	AH Fat (%)	Crude Fiber (%)	Ash (%)	Nitrogen Free Extract (%)	Carbohydrates (%)	Acid Detergent Fiber (%)	Total Digestible Nutrients (%)	Digestible Energy ² (kcal/kg)	Metabolizable Energy ² (kcal/kg)	Net Energy ³ (kcal/kg)
89.30	29.83	10.41	11.60	7.73	5.96	46.07	53.80	13.33	86.32	4011	3764	2093

Mineral Analysis:

Calcium (%)	Phosphorus (%)	Potassium (%)	Magnesium (%)	Sulfur (%)	Sodium (%)	Chloride (%)	Zinc (ppm)	Manganese (ppm)	Copper (ppm)	Iron (ppm)
0.02	0.75	0.94	0.30	0.34	0.18	0.19	44	15	4	217

Amino Acid Analysis:

Arginine (%)	Histidine (%)	Isoleucine (%)	Leucine (%)	Lysine (%)	Methionine (%)	Cystine (%)	Phenylalanine (%)	Threonine (%)	Tryptophan (%)	Valine (%)
1.40	0.83	1.15	3.39	0.97	0.68	0.63	1.47	1.18	0.27	1.52

¹ Nutrient values expressed on 100% dry matter basis.

² DE (for swine) = 4,151 – (122 x % Ash) + (23 x %CP) + (38 x %Fat) – (64 x %Crude Fiber); ME (for swine) = DE x [1.003 - (0.0021 x %CP)], Noblet and Perez (1993).

³ NE (for swine) = 328 + (0.599 x ME) – (15 x %Ash) – (30 x %ADF), Ewan (1989).

APPARENT AND STANDARDIZED TRUE ILEAL DIGESTIBILITY OF CRUDE PROTEIN AND AMINO ACIDS OF DDGS FOR SWINE (100% DRY MATTER BASIS).

	DM	CP	Agr	His	Ile	Leu	Lys	Met	Phe	Thr	Trp	Val	Ala	Asp	Cys	Glu	Gly	Pro	Ser
TOTAL, %	88.7	29.5	1.28	0.72	1.07	3.33	0.84	0.52	1.43	1.13	0.24	1.42	2.14	2.00	0.49	4.95	1.15	2.31	1.42
AID¹, %		60.58	70.85	75.05	71.04	78.95	58.88	78.95	74.98	62.92	59.32	70.43	71.74	61.01	70.15	76.52	36.61	0.22	68.95
A DIG², %		21.66	0.21	1.27	1.17	1.00	0.56	0.53	0.70	0.83	0.15	2.91	1.85	1.58	0.44	1.76	0.62	0.00	0.94
SID³, %		70.74	78.35	78.33	74.55	80.77	63.58	81.05	79.08	69.48	68.20	74.13	75.67	66.93	74.88	79.25	61.39	51.87	75.00
S DIG⁴, %		25.29	0.23	1.32	1.23	1.02	0.61	0.54	0.74	0.92	0.17	3.06	1.95	1.74	0.47	1.82	1.04	0.87	1.03

	NDF, %	ADF, %	ADICP ⁵ , %	Mean particle size, µm	Soluble CP, %	Ash, %	Bulk density, lbs/ft3	pH
OTHER	26.38	8.92	3.12	698.87	27.53	5.07	28.25	4.10

¹ AID = Apparent Ileal Digestibility

² A DIG = Apparent Ileal Digestible CP & Amino Acids

³ SID = Standardized True Ileal Digestibility

⁴ S DIG = Standardized True Ileal Digestible CP & Amino Acids

⁵ ADICP = Acid Detergent Insoluble Crude Protein



**Minnesota Energy
Buffalo Lake, Minnesota**