

Morris Ag Energy / Diversified Energy Co (DENCO)
Morris, Minnesota

IOWA TESTING LAB REPORT NO: 04-000540
DATE: 1/27/2004
REC'D DATE: 1/19/2004
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)
91.60	29.92	11.95	ND ⁴	5.81	6.87	45.45	51.26	9.52	87.33	4083	3839	2239

Mineral Analysis:

Calcium (%)	Phosphorus (%)	Potassium (%)	Magnesium (%)	Sulfur (%)	Sodium (%)	Chloride (%)	Zinc (ppm)	Manganese (ppm)	Copper (ppm)	Iron (ppm)
0.07	0.73	1.02	0.34	1.05	0.13	0.16	49	21	7	108

Amino Acid Analysis:

Arginine (%)	Histidine (%)	Isoleucine (%)	Leucine (%)	Lysine (%)	Methionine (%)	Cystine (%)	Phenylalanine (%)	Threonine (%)	Tryptophan (%)	Valine (%)
1.29	0.85	1.18	3.43	0.95	0.62	0.67	1.45	1.15	0.26	1.65

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).

⁴ ND= not determined.

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, %	89.3	29.83	1.27	0.77	1.08	3.20	0.91	0.52	1.36	1.07	0.24	1.42	2.07	1.90	0.50	4.84	1.16	2.22	1.28
AID¹, %		63.91	72.96	76.71	74.46	83.99	61.70	82.20	79.03	64.60	58.73	72.95	75.54	65.73	68.69	81.48	35.78	9.20	71.96
A DIG², %		19.06	0.93	0.59	0.80	2.69	0.56	0.43	1.08	0.69	0.14	1.04	1.56	1.25	0.34	3.94	0.41	0.20	0.92
SID³, %		73.58	81.94	79.98	77.91	85.84	65.76	83.96	83.08	71.62	66.72	76.87	79.84	71.43	73.23	84.03	63.90	61.94	78.26
S DIG⁴, %		21.95	1.04	0.62	0.84	2.75	0.60	0.44	1.13	0.77	0.16	1.09	1.65	1.36	0.37	4.07	0.74	1.37	1.00

	NDF, %	ADF, %	ADICP⁵, %	Mean particle size, µm	Soluble CP, %	Ash, %	Bulk density, lbs/ft3	pH
OTHER	22.97	8.37	1.79	1115.37	24.04	4.06	27.80	3.70

- 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



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