

**Central Minnesota Ethanol Coop
Little Falls, Minnesota**

IOWA TESTING LAB REPORT NO: 04-000536
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) |
|----------------|-------------------|---------------|-----------------|-----------------|---------|---------------------------|-------------------|--------------------------|--------------------------------|--|---|-----------------------------------|
| 87.30 | 31.10 | 11.44 | ND ⁴ | 5.68 | 9.84 | 41.94 | 47.62 | 12.34 | 84.48 | 3737 | 3504 | 1909 |

Mineral Analysis:

| Calcium (%) | Phosphorus (%) | Potassium (%) | Magnesium (%) | Sulfur (%) | Sodium (%) | Chloride (%) | Zinc (ppm) | Manganese (ppm) | Copper (ppm) | Iron (ppm) |
|-------------|----------------|---------------|---------------|------------|------------|--------------|------------|-----------------|--------------|------------|
| 0.05 | 0.73 | 0.89 | 0.31 | 0.68 | 0.08 | 0.15 | 74 | 19 | 6 | 128 |

Amino Acid Analysis:

| Arginine (%) | Histidine (%) | Isoleucine (%) | Leucine (%) | Lysine (%) | Methionine (%) | Cystine (%) | Phenylalanine (%) | Threonine (%) | Tryptophan (%) | Valine (%) |
|--------------|---------------|----------------|-------------|------------|----------------|-------------|-------------------|---------------|----------------|------------|
| 1.27 | 0.86 | 1.21 | 3.70 | 0.87 | 0.63 | 0.76 | 1.55 | 1.16 | 0.25 | 1.71 |

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, % | 87.6 | 34.83 | 1.47 | 0.90 | 1.24 | 3.90 | 1.06 | 0.61 | 1.64 | 1.29 | 0.28 | 1.67 | 2.53 | 2.27 | 0.59 | 5.81 | 1.36 | 2.67 | 1.63 |
| AID¹, % | | 71.18 | 81.28 | 76.76 | 76.32 | 81.99 | 67.43 | 83.68 | 80.06 | 65.28 | 56.39 | 74.09 | 78.59 | 65.45 | 66.14 | 80.33 | 54.59 | 55.41 | 72.14 |
| A DIG², % | | 24.79 | 1.20 | 0.69 | 0.95 | 3.20 | 0.71 | 0.51 | 1.31 | 0.84 | 0.16 | 1.23 | 1.99 | 1.49 | 0.39 | 4.67 | 0.74 | 1.48 | 1.17 |
| SID³, % | | 80.77 | 90.69 | 79.07 | 78.72 | 82.77 | 70.30 | 84.72 | 83.29 | 71.55 | 64.47 | 77.14 | 81.97 | 69.91 | 69.26 | 82.00 | 84.58 | 119.84 | 77.82 |
| S DIG⁴, % | | 28.13 | 1.34 | 0.71 | 0.98 | 3.23 | 0.74 | 0.51 | 1.37 | 0.92 | 0.18 | 1.28 | 2.07 | 1.59 | 0.41 | 4.76 | 1.15 | 3.20 | 1.27 |

| | NDF, % | ADF, % | ADICP ⁵ , % | Mean particle size, µm | Soluble CP, % | Ash, % | Bulk density, lbs/ft3 | pH |
|--------------|-----------|-----------|---------------------------|------------------------------|------------------|-----------|-----------------------------|------|
| OTHER | 25.78 | 9.64 | 3.39 | 688.79 | 25.21 | 4.22 | 25.77 | 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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