

Table 1. Proximate analysis of Distiller's Dried Grains with Solubles (DDGS).¹

Sample origin	# of samples	DM (%)	CP (%)	Fat (%)	AH Fat (%)	Fiber (%)	Ash (%)	NFE (%)	Carbo-hydrates (%)	ADF (%)	TDN (%)	Swine DE ^c (kcal/kg)	Swine ME ^c (kcal/kg)	Swine NE ^p (kcal/kg)	Starch (%)	Salt (%)
MINNESOTA																
Absolute Energy, Lyle (2008)	1	89.44	31.4	12.7	ND ⁴	7.11	5.02	ND ⁴	ND ⁴	14.4	ND ⁴	4288	4018	2228	2.84	0.34
Agri-Energy, LLC, Luverne	1	88.80	32.8	11.0	ND ⁴	6.63	8.46	41.2	47.8	12.3	84.9	3865	3610	1994	ND ⁴	ND ⁴
AI-Corn Clean Fuel, Claremont	1	88.06	30.8	13.3	ND ⁴	7.78	5.66	ND ⁴	ND ⁴	12.9	ND ⁴	4177	3919	2205	ND ⁴	ND ⁴
Bushmills Ethanol, Inc, Atwater	1	88.23	33.0	11.7	ND ⁴	8.94	7.31	ND ⁴	ND ⁴	14.1	ND ⁴	3892	3634	1972	ND ⁴	ND ⁴
Central MN Ethanol Coop, Little Falls	1	87.30	31.1	11.4	ND ⁴	5.68	9.84	41.9	47.6	12.3	84.5	3737	3504	1909	ND ⁴	ND ⁴
Chippewa Valley Ethanol, Benson	1	90.50	30.1	11.8	ND ⁴	5.62	7.57	44.9	50.5	11.8	86.8	4008	3767	2117	ND ⁴	ND ⁴
Corn Plus Coop, Winnebago	1	90.20	31.6	11.2	ND ⁴	6.09	6.94	44.2	50.2	10.9	87.0	4068	3810	2178	ND ⁴	ND ⁴
Granite Falls Energy, LLC	1	87.55	27.3	11.6	ND ⁴	7.85	5.07	ND ⁴	ND ⁴	10.9	ND ⁴	4099	3877	2249	ND ⁴	ND ⁴
Heartland Corn Products, Winthrop	1	88.20	30.9	11.1	ND ⁴	6.54	6.80	44.6	51.2	9.6	86.66	4036	3786	2206	ND ⁴	ND ⁴
Heron Lake Bioenergy, Heron Lake (2008)	1	89.12	29.7	12.6	ND ⁴	7.70	4.10	ND ⁴	ND ⁴	13.6	ND ⁴	4320	4063	2293	2.91	0.35
Minnesota Energy, Buffalo Lake	1	89.30	29.8	10.4	11.6	7.73	5.96	46.1	53.8	13.3	86.3	4011	3764	2093	ND ⁴	ND ⁴
Morris Ag Energy/ DENCO, Morris	1	91.60	29.9	12.0	ND ⁴	5.81	6.87	45.5	51.3	9.5	87.3	4083	3839	2239	ND ⁴	ND ⁴
ILLINOIS																
Adkins, Lena	1	87.79	28.3	11.0	ND ⁴	7.86	4.98	48.0	55.9	15.6	87.2	4108	3876	2107	ND ⁴	ND ⁴
Archer Daniels Midland, Peoria	1	88.80	30.1	9.0	9.3	7.77	7.30	45.8	53.6	21.0	84.9	3796	3560	1722	ND ⁴	ND ⁴
Center Ethanol Co, LLC, Sauget (2008)	1	90.88	30.7	11.7	ND ⁴	7.03	4.54	ND ⁴	ND ⁴	14.8	ND ⁴	4305	4040	2237	7.59	0.32
Lincolnland, Robinson	1	90.13	29.1	12.3	ND ⁴	7.10	5.67	45.9	53.0	14.7	87.2	4141	3900	2140	ND ⁴	ND ⁴
Marquis Energy, LLC, Hennepin (2008)	1	89.83	30.1	12.5	ND ⁴	7.29	4.63	ND ⁴	ND ⁴	12.7	ND ⁴	4290	4032	2293	4.79	0.32
MGP Ingredients, Inc, Pekin	1	90.90	31.6	12.4	15.5	6.49	6.50	43.0	49.5	8.0	87.0	4142	3871	2309	ND ⁴	ND ⁴
INDIANA																
Iroquois Bio-Energy Co, LLC, Rensselaer	1	91.69	30.1	13.5	ND ⁴	8.31	5.75	ND ⁴	ND ⁴	13.6	ND ⁴	4122	3873	2154	ND ⁴	ND ⁴
New Energy Corp, South Bend	1	89.40	28.7	12.1	13.4	7.83	5.97	45.4	53.2	15.3	86.2	4043	3803	2057	ND ⁴	ND ⁴
IOWA																
Golden Grain Energy, New Hampton	1	87.70	30.0	12.7	ND ⁴	7.53	5.55	44.2	51.8	ND ⁴	86.9	4164	3914	ND ⁴	ND ⁴	ND ⁴
Grain Processing Corp, Muscatine	1	92.40	29.3	3.5	6.0	7.90	5.29	54.0	61.9	11.8	86.8	3808	3577	2037	ND ⁴	ND ⁴
Green Plains Renewable Energy, Shenandoah	1	88.12	30.0	11.9	ND ⁴	9.12	6.15	ND ⁴	ND ⁴	13.8	ND ⁴	3959	3722	2052	ND ⁴	ND ⁴
Little Sioux Corn Processors, Marcus	1	88.50	32.3	11.6	ND ⁴	6.51	6.81	42.8	49.3	12.2	86.7	4087	3822	2024	ND ⁴	ND ⁴
Midwest Grain Processors, Lakota	1	89.30	33.7	11.5	ND ⁴	6.89	8.61	39.3	46.1	12.3	84.5	3873	3610	1991	ND ⁴	ND ⁴
Quad-County Corn Processors, Galva	1	89.00	32.9	8.8	ND ⁴	8.62	3.20	46.5	55.2	18.1	88.2	4299	4008	2138	ND ⁴	ND ⁴
Tall Corn Ethanol, Coon Rapids	1	87.40	30.4	11.9	ND ⁴	6.41	4.70	46.6	53.0	17.5	88.9	4319	4048	2157	ND ⁴	ND ⁴
KENTUCKY																
Commonwealth Agri-Energy LLC, Hopkinsville	1	92.20	29.9	10.7	10.5	8.46	4.83	46.2	54.6	15.2	86.7	4113	3859	2112	ND ⁴	ND ⁴
Jim Beam, Boston	1	89.70	28.5	9.8	13.2	8.81	4.85	48.1	56.9	15.5	86.3	4021	3784	2057	ND ⁴	ND ⁴
Jim Beam, Clermont	1	89.80	29.9	8.8	8.5	10.58	3.74	47.0	57.6	20.2	85.7	4039	3789	1937	ND ⁴	ND ⁴

Sample origin	# of samples	DM (%)	CP (%)	Fat (%)	AH Fat (%)	Fiber (%)	Ash (%)	NFE (%)	Carbo-hydrates (%)	ADF (%)	TDN (%)	Swine DE ² (kcal/kg)	Swine ME ² (kcal/kg)	Swine NE ³ (kcal/kg)	Starch (%)	Salt (%)
<i>- Table 1 continued -</i>																
MICHIGAN																
Michigan Ethanol, Caro	1	89.60	32.6	11.0	12.7	7.37	6.06	42.9	50.3	12.8	86.6	4110	3833	2148	ND ⁴	ND ⁴
MISSOURI																
Golden Triangle Energy, Craig	1	87.00	30.7	9.8	11.5	7.13	5.60	46.8	53.9	14.4	87.3	4090	3830	2108	ND ⁴	ND ⁴
NE Missouri Grain Processors, Macon	1	88.80	30.2	10.7	10.9	7.21	5.18	46.8	54.0	15.4	87.6	4157	3898	2122		
NEBRASKA																
Abengoa Bioenergy Corp, York	1	90.60	31.0	9.0	9.1	10.38	2.97	46.6	57.0	18.1	86.7	4179	3911	2083	ND ⁴	ND ⁴
E Energy, Adams (2008)	1	91.85	31.4	11.8	ND ⁴	7.14	4.42	ND ⁴	ND ⁴	13.9	ND ⁴	4330	4058	2276	3.96	0.22
Nebraska Energy, LLC, Aurora	1	86.22	31.3	12.8	ND ⁴	7.07	4.80	44.0	51.0	17.2	88.1	4321	4042	2162	ND ⁴	ND ⁴
Siouxland Ethanol, LLC, Jackson (2008)	1	87.40	27.9	11.8	ND ⁴	7.94	4.71	ND ⁴	ND ⁴	11.5	ND ⁴	4162	3931	2267	7.96	0.23
NEW YORK																
Western New York Energy, LLC, Medina (2008)	1	88.21	30.0	9.6	ND ⁴	7.87	4.55	ND ⁴	ND ⁴	12.3	ND ⁴	4151	3902	2229	7.21	0.31
NORTH DAKOTA																
Alchem Ltd, LLLP, Grafton	1	88.90	32.6	12.3	ND ⁴	5.37	7.12	33.8	39.2	11.0	78.7	4155	3883	2218	ND ⁴	ND ⁴
Archer Daniels Midland, Walhalla	1	89.10	32.4	10.6	ND ⁴	6.24	6.67	44.1	50.4	14.0	87.1	4086	3821	2096	ND ⁴	ND ⁴
Blue Flint Ethanol, Underwood	1	89.15	31.4	11.7	ND ⁴	8.07	6.33	ND ⁴	ND ⁴	13.3	ND ⁴	4028	3775	2096	ND ⁴	ND ⁴
Red Trail Energy, LLC, Richardson	1	89.67	30.6	12.2	ND ⁴	7.87	5.14	ND ⁴	ND ⁴	11.1	ND ⁴	4186	3930	2272	ND ⁴	ND ⁴
SOUTH DAKOTA																
Dakota Ethanol, Wentworth	1	91.58	29.5	10.6	ND ⁴	7.61	4.72	ND ⁴	ND ⁴	14.3	ND ⁴	4168	3923	2178	ND ⁴	ND ⁴
Glacial Lakes, Watertown (2008)	1	87.62	33.0	11.0	ND ⁴	7.40	3.99	ND ⁴	ND ⁴	13.8	ND ⁴	4366	4077	2296	5.43	0.3
Redfield Energy, LLC, Redfield (2008)	1	87.73	31.8	12.7	ND ⁴	5.92	5.08	ND ⁴	ND ⁴	12.6	ND ⁴	4365	4087	2324	6.5	0.3
VeraSun Energy Corp, Aurora	1	87.50	32.9	11.8	ND ⁴	5.67	5.31	44.3	50.0	ND ⁴	89.0	4147	3707	ND ⁴	ND ⁴	ND ⁴
WISCONSIN																
ACE Ethanol, Stanley	1	90.76	29.8	10.7	ND ⁴	7.68	4.76	ND ⁴	ND ⁴	14.4	ND ⁴	4168	3920	2172	ND ⁴	ND ⁴
Castle Rock Renewable Fuels, Necedah (2008)	1	88.63	31.4	11.6	ND ⁴	7.07	5.51	ND ⁴	ND ⁴	11.8	ND ⁴	4189	3925	2246	5.57	0.32
United Wisconsin Grain Producers, Friesland	1	89.65	33.9	12.6	ND ⁴	8.03	7.03	38.5	46.5	ND ⁴	84.9	4037	3761	ND ⁴	ND ⁴	ND ⁴
TOTAL # of samples	49															
AVERAGE		89.22	30.8	11.2	11.0	7.41	5.69	44.6	51.9	13.7	86.4	4114	3855	2141	5.48	0.30

¹ Nutrient values expressed on 100% dry matter basis.

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

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

⁴ ND = not determined.

Table 2. Mineral composition of Distiller's Dried Grains with Solubles (DDGS).¹

Sample origin	# of samples	Calcium (%)	Phosphorus (%)	Potassium (%)	Magnesium (%)	Sulfur (%)	Sodium (%)	Chloride (%)	Zinc (ppm)	Manganese (ppm)	Copper (ppm)	Iron (ppm)
MINNESOTA												
Absolute Energy, Lyle (2008)	1	0.03	0.91	ND ²	0.35	0.53	0.18	0.20	70.9	15.6	5.4	84
Agri-Energy, LLC, Luverne	1	0.07	0.83	1.07	0.33	0.83	0.10	ND ²	55.0	21.0	5.0	134
AI-Corn Clean Fuel, Claremont	1	0.03	0.85	1.12	0.36	1.20	0.31	0.20	59.0	15.0	6.0	90
Bushmills Ethanol, Inc, Atwater	1	0.02	0.77	0.93	0.31	0.90	0.16	0.16	56.0	11.0	7.0	90
Central MN Ethanol Coop, Little Falls	1	0.05	0.73	0.89	0.31	0.68	0.08	0.15	74.0	19.0	6.0	128
Chippewa Valley Ethanol, Benson	1	0.07	0.74	1.08	0.33	0.65	0.04	0.18	53.0	21.0	3.0	107
Corn Plus Coop, Winnebago	1	0.08	0.80	1.03	0.33	0.85	0.10	0.16	42.0	16.0	4.0	116
Granite Falls Energy, LLC	1	0.02	0.80	1.01	0.33	0.61	0.26	0.21	55.0	11.0	7.0	89
Heartland Corn Products, Winthrop	1	0.08	0.77	1.00	0.34	0.66	0.18	0.17	52.0	16.0	3.0	108
Heron Lake Bioenergy, Heron Lake (2008)	1	0.02	0.76	ND ²	0.34	0.57	0.13	0.21	65.8	18.0	4.3	70
Minnesota Energy, Buffalo Lake	1	0.02	0.75	0.94	0.30	0.34	0.18	0.19	44.0	15.0	4.0	217
Morris Ag Energy/DENCO, Morris	1	0.07	0.73	1.02	0.34	1.05	0.13	0.16	49.0	21.0	7.0	108
ILLINOIS												
Adkins, Lena	1	0.02	0.79	1.33	0.31	0.31	0.26	ND ²	47.0	13.0	6.0	68
Archer Daniels Midland, Peoria	1	0.51	0.68	1.17	0.26	0.63	0.45	0.36	38.0	23.0	5.0	295
Center Ethanol Co, LLC, Sauget (2008)	1	0.03	0.79	ND ²	0.26	0.81	0.33	0.20	71.7	15.5	6.5	75
Lincolnland, Robinson	1	0.07	0.84	1.33	0.33	0.71	0.26	ND ²	61.0	20.0	7.0	121
Marquis Energy, LLC, Hennepin (2008)	1	0.01	0.83	ND ²	0.27	0.58	0.19	0.20	48.3	10.4	4.6	52
MGP Ingredients, Inc, Pekin	1	0.10	0.90	1.13	0.36	0.76	0.07	ND ²	57.0	23.0	6.0	120
INDIANA												
Iroquois Bio-Energy Co, LLC, Rensselaer	1	0.02	0.85	1.17	0.33	0.72	0.19	0.23	48.0	12.0	7.0	76
New Energy Corp, South Bend	1	0.02	0.81	1.13	0.30	0.34	0.17	ND ²	53.0	16.0	6.0	110
IOWA												
Golden Grain Energy, New Hampton	1	0.08	0.80	1.04	0.35	0.56	0.35	ND ²	45.0	14.0	5.0	91
Grain Processing Corp, Muscatine	1	0.12	0.78	0.87	0.29	0.44	0.52	0.34	64.0	25.0	6.0	188
Green Plains Renewable Energy, Shenandoah	1	0.02	0.84	1.08	0.33	0.64	3.97	0.16	58.0	14.0	7.0	84
Little Sioux Corn Processors, Marcus	1	0.07	0.73	0.82	0.31	0.43	0.11	0.14	68.0	19.0	6.0	132
Midwest Grain Processors, Lakota	1	0.08	0.76	1.00	0.30	0.36	0.27	0.19	52.0	21.0	6.0	112
Quad-County Corn Processors, Galva	1	0.06	0.47	0.45	0.16	0.69	0.07	ND ²	38.0	9.0	8.0	135
Tall Corn Ethanol, Coon Rapids	1	0.07	0.77	1.00	0.33	0.97	0.14	ND ²	95.0	22.0	7.0	112
KENTUCKY												
Commonwealth Agri-Energy, LLC, Hopkinsville	1	0.05	0.42	0.85	0.14	0.53	0.04	0.12	43.0	9.0	5.0	77
Jim Beam, Boston	1	0.08	0.85	1.03	0.29	0.52	0.02	0.17	52.0	26.0	9.0	118
Jim Beam, Clermont	1	0.04	0.57	0.62	0.18	0.40	0.01	ND ²	41.0	14.0	8.0	84

Sample origin	# of samples	Calcium (%)	Phosphorus (%)	Potassium (%)	Magnesium (%)	Sulfur (%)	Sodium (%)	Chloride (%)	Zinc (ppm)	Manganese (ppm)	Copper (ppm)	Iron (ppm)
- Table 2 continued -												
MICHIGAN												
Michigan Ethanol, Caro	1	0.02	0.99	1.06	0.38	0.89	0.16	0.18	93.0	15.0	6.0	96
MISSOURI												
Golden Triangle Energy, Craig	1	0.02	0.69	0.71	0.23	0.61	0.13	ND ²	75.0	14.0	6.0	134
NE Missouri Grain Processors, Macon	1	0.03	0.83	1.02	0.29	0.73	0.20	ND ²	81.0	21.0	7.0	135
NEBRASKA												
Abengoa Bioenergy Corp, York	1	0.02	0.43	0.49	0.14	0.79	0.17	ND ²	44.0	9.0	6.0	78
E Energy, Adams (2008)	1	0.02	0.81	ND ²	0.30	0.65	0.23	0.13	65.5	15.5	5.1	79
Nebraska Energy, LLC, Aurora	1	0.03	0.92	1.18	0.34	0.75	0.13	ND ²	57.0	19.0	8.0	116
Siouxland Ethanol, LLC, Jackson (2008)	1	0.03	0.82	ND ²	0.30	0.63	0.25	0.14	63.6	15.3	3.8	80
NEW YORK												
Western New York Energy, LLC, Medina (2008)	1	0.02	0.85	ND ²	0.31	0.63	0.19	0.18	70.6	15.3	4.6	83
NORTH DAKOTA												
Alchem Ltd, LLLP, Grafton	1	0.07	0.93	1.27	0.39	0.43	0.07	ND ²	60.0	25.0	4.0	166
Archer Daniels Midland, Walhalla	1	0.12	0.79	1.01	0.36	0.54	0.27	0.21	53.0	27.0	3.0	239
Blue Flint Ethanol, Underwood	1	0.02	0.82	1.01	0.35	0.79	0.18	0.18	44.0	14.0	6.0	82
Red Trail Energy, LLC, Richardson	1	0.02	0.84	1.14	0.38	0.83	0.25	0.16	50.0	14.0	6.0	86
SOUTH DAKOTA												
Dakota Ethanol, Wentworth	1	0.02	0.83	0.97	0.35	0.96	0.11	0.17	79.0	14.0	6.0	72
Glacial Lakes, Watertown (2008)	1	0.03	0.68	ND ²	0.29	0.50	0.15	0.18	39.8	11.2	3.4	72
Redfield Energy, LLC, Redfield (2008)	1	0.02	0.85	ND ²	0.40	0.71	0.26	0.18	61.4	19.6	4.6	84
VeraSun Energy Corp, Aurora	1	0.09	0.89	1.23	0.27	0.67	0.22	0.18	105.0	24.0	10.0	117
WISCONSIN												
ACE Ethanol, Stanley	1	0.02	0.84	1.07	0.34	0.73	0.03	0.15	53.0	17.0	8.0	83
Castle Rock Renewable Fuels, Necedah (2008)	1	0.02	0.90	ND ²	0.34	0.68	0.33	0.19	64.2	15.2	5.1	76
United Wisconsin Grain Producers, Friesland	1	0.06	1.06	1.33	0.45	1.93	0.33	ND ²	68.0	20.0	13.0	113
TOTAL # of samples	49											
AVERAGE		0.05	0.79	1.02	0.31	0.69	0.26	0.19	58.8	17.0	6.0	110

¹ Nutrient values expressed on 100% dry matter basis.

² ND = not determined.

Sample origin	# of samples	Arginine (%)	Histidine (%)	Isoleucine (%)	Leucine (%)	Lysine (%)	Methionine (%)	Cystine (%)	Phenylalanine (%)	Threonine (%)	Tryptophan (%)	Valine (%)	Hydroxyproline (%)	Aspartic Acid (%)	Serine (%)	Glutamic Acid (%)	Proline (%)	Lanthionine (%)	Glycine (%)	Alanine (%)	Tyrosine (%)	Hydroxylysine (%)	Ornithine (%)			
<i>- Table 3 continued -</i>																										
MICHIGAN																										
Michigan Ethanol, Caro	1	1.28	0.86	1.18	3.67	0.87	0.71	0.73	1.52	1.15	0.25	1.57	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²		
MISSOURI																										
Golden Triangle Energy, Craig	1	1.45	0.84	1.21	3.87	0.95	0.71	0.72	1.60	1.15	0.25	1.56	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	
NE Missouri Grain Processors, Macon	1	1.24	0.82	1.14	3.49	0.82	0.75	0.71	1.45	1.14	0.23	1.59	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	
NEBRASKA																										
Abengoa Bioenergy Corp, York	1	1.38	0.98	1.19	3.94	0.98	0.73	0.72	1.66	1.21	0.25	1.53	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	
E Energy, Adams (2008)	1	1.59	0.88	1.25	3.73	1.11	0.69	0.62	1.69	1.16	0.23	1.67	0.00	2.01	1.34	4.30	2.19	0.00	1.30	2.21	1.21	0.00	0.02	0.02	0.02	
Nebraska Energy, LLC, Aurora	1	1.45	0.86	1.21	3.61	1.06	0.61	0.68	1.48	1.19	0.34	1.66	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	
Siouxland Ethanol, LLC, Jackson (2008)	1	1.43	0.78	1.08	3.17	1.06	0.58	0.56	1.48	1.04	0.23	1.45	0.00	1.76	1.19	3.73	1.93	0.00	1.17	1.91	1.06	0.00	0.02	0.02	0.02	
NEW YORK																										
Western New York Energy, LLC, Medina (2008)	1	1.46	0.85	1.21	3.64	1.04	0.61	0.60	1.63	1.11	0.20	1.59	0.00	1.93	1.26	4.33	2.14	0.00	1.22	2.17	1.19	0.00	0.03	0.03	0.03	
NORTH DAKOTA																										
Alchem Ltd, LLLP, Grafton	1	1.29	0.88	1.24	3.72	0.88	0.65	0.65	1.56	1.25	0.27	1.68	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	
Archer Daniels Midland, Walhalla	1	1.26	0.88	1.22	3.86	0.79	0.68	0.67	1.55	1.21	0.25	1.69	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²
Blue Flint Ethanol, Underwood	1	1.51	0.92	1.31	3.95	1.17	0.67	0.68	1.76	1.20	0.24	1.72	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²
Red Trail Energy, LLC, Richardson	1	1.42	0.83	1.18	3.51	1.03	0.59	0.60	1.59	1.09	0.22	1.57	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²
SOUTH DAKOTA																										
Dakota Ethanol, Wentworth	1	1.41	0.85	1.26	3.71	1.04	0.61	0.63	1.69	1.15	0.22	1.63	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²
Glacial Lakes, Watertown (2008)	1	1.67	0.96	1.38	4.23	1.19	0.68	0.62	1.92	1.32	0.25	1.83	0.00	2.17	1.54	4.65	2.44	0.00	1.30	2.41	1.46	0.00	0.05	0.05	0.05	
Redfield Energy, LLC, Redfield (2008)	1	1.52	0.85	1.21	3.57	1.13	0.62	0.57	1.65	1.17	0.25	1.60	0.00	1.96	1.36	4.07	2.12	0.00	1.25	2.14	1.23	0.08	0.05	0.05	0.05	
VeraSun Energy Corp, Aurora	1	1.28	0.80	1.04	3.27	0.95	0.57	0.70	1.40	1.10	0.20	1.46	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	
WISCONSIN																										
ACE Ethanol, Stanley	1	1.47	0.86	1.27	3.72	1.09	0.56	0.58	1.70	1.11	0.22	1.66	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²
Castle Rock Renewable Fuels, Necedah (2008)	1	1.50	0.88	1.26	3.76	1.13	0.63	0.59	1.69	1.18	0.24	1.68	0.00	1.99	1.34	4.29	2.18	0.00	1.29	2.25	1.25	0.00	0.02	0.02	0.02	
United Wisconsin Grain Producers, Friesland	1	1.38	0.84	1.18	3.76	0.98	0.59	0.62	1.55	1.13	0.21	1.57	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²	ND ²
TOTAL # of samples	49																									
AVERAGE		1.38	0.84	1.19	3.60	0.97	0.63	0.64	1.57	1.15	0.24	1.58	0.00	1.95	1.33	4.13	2.13	0.00	1.25	2.15	1.22	0.01	0.03	0.03	0.03	

¹ Nutrient values expressed on 100% dry matter basis.

² ND = not determined.