

DRY MATTER

Dry Matter Bases

	BTU/lb.	Ash %	Sulfur %
Corn - Shelled 54.5 lb/bu T.W.	8100	1.30	0.13
Corn - High Oil 56.2 lb/bu T.W.	8480	1.34	0.11
Corn - Waxy 56.6 lb/bu T.W.	8113	1.44	0.14
Dried Distillers Grain with Solubles	9422	4.16	0.45
Dried Distillers Grain without Solubles	9848	2.24	0.40
Corn Gluten Feed	8097	4.30	0.38
Corn Cob	7911	2.32	0.04
Corn Stovers/Stalks	7768	7.64	0.04
Soybeans	10230	6.22	0.33
Soybean Hulls	7570	4.22	0.08
Wheat			
Hard Red Spring	8063	2.28	0.22
Wheat Midds	8415	6.00	0.17
Wheat Straw	7375	11.33	0.14
Oats	8242	3.58	0.16
Oat Straw	7626	8.49	0.06
Hardwood Pellet	8573	0.36	0.01
Aspen	8501	2.67	0.02
Alfalfa	7729	9.06	0.22
Sugar Beet Pulp	7345	4.31	0.16
Sunflower Hulls	9654	3.13	0.15

AURI Fuels Initiative

Agricultural Renewable Solid Fuels Data



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Preface

All provided information is based on the Proximate Analysis testing for solid fuels in accordance with American Society for Testing and Materials (ASTM)¹. The compiled information should be used only as a general comparative guide for agricultural renewable fuels.

The evaluated agricultural renewable fuel groups include grains, crops, residues, fibers, and agricultural processing co-products.

Agricultural products naturally contain variability which is dependent on geographical regions, grain/plant varieties, and seasonal changes.

The determined British Thermal Unit (BTU) information followed ASTM standards and will vary from actual combustion performance. Ash percentage and BTU output are dependent on moisture, combustion efficiency, operation, and operating conditions. Dry matter results are a calculated value for use only as a comparative guide.²

Cost comparative analysis must be done on a case-by-case basis. In addition to solid fuel proximate analysis information, consideration must be given to cost of fuel, transportation and physical processing of the fuel (grinding, milling, pelleting). These factors affect fuel cost.



WHEAT

	Moisture %	BTU/lb. As Received	Ash % As Received	Sulfur % As Received
Wheat				
Hard Red Spring	10.38	7159	2.08	0.2
Wheat Midds	12.58	7228	5.18	0.15
Wheat Straw	8.26	6839	10.40	0.07

OATS

	Moisture %	BTU/lb. As Received	Ash % As Received	Sulfur % As Received
Oats	12.49	7143	3.17	0.135
Oat Straw	6.91	7153	7.90	0.05

WOOD

	Moisture %	BTU/lb. As Received	Ash % As Received	Sulfur % As Received
Hardwood Pellet	7.08	7955	0.34	0.01
Aspen	6.02	7786	2.48	0.02

ALFALFA

	Moisture %	BTU/lb. As Received	Ash % As Received	Sulfur % As Received
Alfalfa	12.25	6934	7.94	0.195

FIBER

	Moisture %	BTU/lb. As Received	Ash % As Received	Sulfur % As Received
Sugar Beet Pulp	9.70	6597	3.80	0.14
Sunflower Hulls	8.65	8474	2.86	0.14

B i o m a s s F u e l s

CORN

	Moisture %	BTU/lb. As Received	Ash % As Received	Sulfur % As Received
Corn - Shelled 54.5 lb/bu T.W.	13.43	6924	1.1	0.11
Corn - High Oil 56.2 lb/bu T.W.	12.49	7398	1.17	0.09
Corn - Waxy 56.6 lb/bu T.W.	13.09	7073	1.26	0.12
Dried Distillers Grain with Solubles	9.27	8459	4.13	0.4
Dried Distillers Grain without Solubles	13.35	8473	1.96	0.34
Corn Gluten Feed	12.06	7199	3.78	0.33
Corn Cob	7.12	7369	2.16	0.04
Corn Stovers/Stalks	9.14	7057	6.81	0.03

SOYBEANS

	Moisture %	BTU/lb. As Received	Ash % As Received	Sulfur % As Received
Soybeans	10.25	8783	5.19	0.29
Soybean Hulls	11.38	6660	4.17	0.07

¹ **Methods:** Moisture: ASTM D3173; Ash: ASTM D3174; Btu/lb: ASTM D1989; Sulfur: ASTM D4293

² Calculated value using ASTM Standard D3180-89