

CORN SOY REPORT 2017

AMINONIR®





Dear Customer,

In continuation of a long term commitment to our customers, Evonik Nutrition & Care has compiled a comprehensive report characterizing the amino acids, crude fat, crude fiber, sugar, and ash contents of corn, soybean meal, and corn-based dried distillers grains with solubles (DDGS) for 2017. The data presented for corn and soybean meal are representative of the current U.S. crops and are segmented by region.

The 2017 soybean meal crop has a relatively low crude protein value, at 46.1%, which is consistent with the reduction in crude protein content observed in soybean meal over the last five years. In fact, the soybean meal from the 2017 crop has the lowest crude protein content observed since 2007. For this year's crop, crude protein content across the regions ranges from 45.9% for the Western Corn Belt to 46.8% for the Southeast.

Regional differences continue to be notable in this year's corn crop, with crude protein levels ranging from 7.3% for the East Coast to 8.2% for the Midsouth. Overall, the mean crude protein content of 7.5% is consistent with the 2016 crop.

Overall DDGS mean crude protein content has slightly increased, at 27.1%, relative to the previous three years. Statistics from the DDGS data continue to confirm that this is a highly variable ingredient.

While we take the responsibility to generate this report, we feel that what makes it so successful is that it is entirely based on samples collected by our customers and analyzed through Evonik's AMINONIR® laboratory service. By compiling the report as presented, we believe that we can provide information that is pertinent to our customers and their operations, as well as give insight into general trends that are occurring in each year's crops.

Thank you to our customers who participated in the 2017 crop report. Without your participation, this report would not be possible.

We sincerely hope that this report will provide you with valuable information on the nutrition value of the U.S. harvest 2017.

Enjoy the data!

Yours sincerely,

Ken O'Halloran

Regional Vice President Animal Nutrition

CORN

Region	n	STAT	Crude Protein	Oil (EE)	Starch (Ewers)	Sugar	Ash	Crude Fiber	MET	CYS	M+C	LYS	THR	TRP	ARG	ILE	LEU	VAL	HIS	PHE		
All Regions	475	Mean (%)	7.52	3.39	65.45	1.25	1.15	1.72	0.15	0.17	0.32	0.24	0.27	0.06	0.36	0.26	0.91	0.36	0.22	0.37		
		SD	0.55	0.18	1.10	0.31	0.08	0.10	0.01	0.01	0.02	0.01	0.02	0.003	0.02	0.02	0.08	0.02	0.01	0.03		
		CV (%)	7.31	5.31	1.68	24.80	6.96	5.81	6.67	5.88	6.25	4.17	7.41	4.71	5.56	7.69	8.79	5.56	4.55	8.11		
		Min (%)	6.00	2.80	60.70	0.40	1.00	1.50	0.13	0.14	0.27	0.20	0.22	0.05	0.30	0.20	0.69	0.29	0.18	0.29		
		Max (%)	10.36	4.00	68.20	2.80	1.40	2.00	0.20	0.20	0.39	0.29	0.36	0.07	0.47	0.37	1.39	0.48	0.29	0.55		
Western Corn Belt (CO, IA, KS, MN, MO, NE, ND, SD, UT, WY)	264	Mean (%)	7.50	3.40	65.62	1.32	1.14	1.69	0.15	0.17	0.32	0.24	0.27	0.06	0.36	0.26	0.91	0.36	0.22	0.37		
		SD	0.43	0.18	1.02	0.29	0.06	0.08	0.01	0.01	0.02	0.01	0.02	0.002	0.02	0.02	0.06	0.02	0.01	0.02		
		CV (%)	5.73	5.29	1.55	21.97	5.26	4.73	6.67	5.88	6.25	4.17	7.41	3.33	5.56	7.69	6.59	5.56	4.55	5.41		
		Min (%)	6.24	2.90	62.40	0.60	1.00	1.50	0.13	0.15	0.27	0.20	0.23	0.05	0.31	0.21	0.71	0.31	0.19	0.29		
		Max (%)	9.15	4.00	68.20	2.80	1.40	1.90	0.18	0.19	0.36	0.29	0.34	0.07	0.47	0.32	1.06	0.43	0.27	0.45		
Eastern Corn Belt (IL, IN, MI, OH, WI)	97	Mean (%)	7.27	3.36	65.76	1.14	1.14	1.70	0.15	0.16	0.31	0.23	0.26	0.06	0.35	0.25	0.88	0.35	0.21	0.36		
		SD	0.55	0.17	0.93	0.27	0.06	0.07	0.01	0.01	0.02	0.01	0.02	0.003	0.02	0.02	0.09	0.02	0.01	0.03		
		CV (%)	7.57	5.15	1.41	23.33	5.52	3.99	6.67	6.25	6.45	4.35	7.69	5.00	5.71	8.00	10.23	5.71	4.76	8.33		
		Min (%)	6.00	2.80	63.30	0.40	1.00	1.60	0.13	0.14	0.27	0.21	0.22	0.05	0.30	0.20	0.69	0.29	0.18	0.29		
		Max (%)	8.89	3.80	67.90	1.80	1.30	1.90	0.18	0.18	0.37	0.26	0.32	0.07	0.41	0.31	1.22	0.42	0.25	0.47		
Midsouth (TN, TX)	30	Mean (%)	8.15	3.51	64.43	1.37	1.26	1.87	0.16	0.17	0.33	0.24	0.29	0.06	0.38	0.28	1.00	0.38	0.23	0.41		
		SD	0.84	0.17	1.07	0.41	0.06	0.07	0.01	0.01	0.02	0.01	0.03	0.003	0.03	0.03	0.15	0.04	0.02	0.05		
		CV (%)	10.31	4.76	1.66	29.63	4.83	3.95	6.25	5.88	6.06	4.17	10.34	5.00	7.89	10.71	15.00	10.53	8.70	12.20		
		Min (%)	6.91	3.20	61.70	0.70	1.10	1.70	0.15	0.16	0.29	0.22	0.25	0.06	0.33	0.23	0.77	0.32	0.19	0.33		
		Max (%)	10.36	3.90	66.70	2.10	1.30	2.00	0.20	0.20	0.39	0.27	0.36	0.07	0.45	0.37	1.39	0.48	0.29	0.55		
Southeast (GA, NC)	36	Mean (%)	7.96	3.36	64.12	1.12	1.24	1.85	0.16	0.17	0.33	0.24	0.29	0.06	0.37	0.27	0.96	0.38	0.23	0.39		
		SD	0.48	0.19	1.06	0.32	0.09	0.12	0.01	0.01	0.02	0.01	0.02	0.002	0.02	0.02	0.09	0.02	0.01	0.03		
		CV (%)	6.03	5.62	1.65	28.92	7.04	6.37	6.25	5.88	6.06	4.17	6.90	3.33	5.41	7.41	9.38	5.26	4.35	7.69		
		Min (%)	6.88	3.00	60.70	0.40	1.10	1.60	0.15	0.16	0.30	0.23	0.25	0.06	0.34	0.23	0.80	0.33	0.21	0.33		
		Max (%)	9.23	3.80	66.20	2.00	1.40	2.00	0.19	0.19	0.38	0.27	0.33	0.07	0.43	0.32	1.16	0.43	0.27	0.46		
East Coast (MD, NJ, PA, VA)	31	Mean (%)	7.25	3.25	65.95	0.98	1.10	1.64	0.15	0.16	0.31	0.23	0.26	0.06	0.34	0.25	0.88	0.35	0.22	0.35		
		SD	0.51	0.12	0.83	0.18	0.09	0.11	0.01	0.01	0.02	0.01	0.02	0.003	0.02	0.02	0.09	0.02	0.01	0.03		
		CV (%)	7.03	3.73	1.26	18.83	7.82	6.46	6.67	6.25	6.45	4.35	7.69	5.00	5.88	8.00	10.23	5.71	4.55	8.57		
		Min (%)	6.41	3.00	63.70	0.60	1.00	1.50	0.13	0.15	0.28	0.22	0.24	0.05	0.31	0.22	0.72	0.31	0.20	0.30		
		Max (%)	9.11	3.50	67.40	1.30	1.40	2.00	0.17	0.19	0.36	0.26	0.33	0.07	0.40	0.32	1.19	0.43	0.27	0.48		
West Coast (CA, WA)	17	Mean (%)	7.63	3.54	64.77	1.44	1.14	1.70	0.16	0.17	0.33	0.24	0.28	0.06	0.37	0.26	0.92	0.36	0.22	0.38		
		SD	0.25	0.14	0.29	0.28	0.05	0.05	0.01	0.01	0.01	0.00	0.01	0.001	0.01	0.01	0.04	0.01	0.01	0.01		
		CV (%)	3.28	3.87	0.45	19.23	4.47	2.94	6.25	5.88	3.03	0.00	3.57	1.67	2.70	3.85	4.35	2.78	4.55	2.63		
		Min (%)	7.26	3.20	64.10	1.00	1.10	1.60	0.15	0.16	0.31	0.23	0.26	0.06	0.36	0.25	0.86	0.35	0.21	0.36		
		Max (%)	8.21	3.70	65.30	1.80	1.20	1.80	0.17	0.18	0.35	0.25	0.30	0.06	0.39	0.29	1.01	0.39	0.24	0.41		
Crop Year	633	Mean (%)	7.48	3.17	61.72	-	0.87	1.21	0.15	0.17	0.32	0.23	0.27	0.06	0.36	0.25	0.91	0.35	0.22	0.37		
		2014	566	Mean (%)	7.03	3.61	64.62	1.49	1.05	2.25	0.13	0.16	0.30	0.22	0.25	0.05	0.33	0.24	0.84	0.33	0.20	0.34
		2015	634	Mean (%)	7.37	3.70	65.35	1.43	1.19	1.90	0.15	0.17	0.32	0.22	0.27	0.06	0.33	0.25	0.92	0.35	0.21	0.36
		2016	433	Mean (%)	7.60	3.71	64.63	1.43	1.15	1.84	0.15	0.17	0.32	0.23	0.27	0.06	0.35	0.26	0.93	0.36	0.22	0.37
		2017	475	Mean (%)	7.52	3.39	65.45	1.25	1.15	1.72	0.15	0.17	0.32	0.24	0.27	0.06	0.36	0.26	0.91	0.36	0.22	0.37

		Digestibility Coefficients (%)											
		MET	CYS	M+C	LYS	THR	TRP	ARG	ILE	LEU	VAL	HIS	PHE
Swine	87	83	85	75	80	77	89	86	89	85	87	87	
Poultry	95	89	92	91	89	83	89	98	93	95	97	93	

AMINONIR®

DDGS-CORN

Region	n	STAT	Crude Protein	Oil (EE)	Starch (Ewers)	Sugar	Ash	Crude Fiber	MET	CYS	M+C	LYS	THR	TRP	ARG	ILE	LEU	VAL	HIS	PHE	
	2667	Mean (%)	27.12	8.80	4.48	1.36	4.47	6.61	0.52	0.51	1.02	0.79	1.00	0.22	1.17	0.97	3.00	1.27	0.70	1.28	
		SD	1.66	1.66	1.30	0.69	0.58	0.58	0.05	0.04	0.09	0.06	0.06	0.020	0.11	0.07	0.21	0.09	0.05	0.10	
		CV (%)	6.12	8.98	29.02	50.74	7.38	8.77	9.62	7.84	8.82	7.59	6.00	9.09	9.40	7.22	7.00	7.09	7.14	7.81	
		Min (%)	22.72	6.30	2.10	0.20	2.30	5.20	0.42	0.42	0.82	0.46	0.79	0.14	0.82	0.77	2.55	1.01	0.53	1.06	
		Max (%)	48.53	13.00	11.30	6.70	5.60	8.80	1.10	0.97	2.22	1.81	1.82	0.46	2.99	1.91	5.55	2.30	1.17	2.41	
Crop Year																					
2013	5182	Mean (%)	28.77	10.03	6.25	--	4.49	5.34	0.57	0.53	1.09	0.90	1.08	0.22	1.28	1.06	3.33	1.39	0.76	1.41	
2014	4684	Mean (%)	26.94	9.47	4.92	1.14	4.37	6.24	0.53	0.50	1.03	0.81	1.00	0.22	1.20	0.96	3.05	1.29	0.71	1.29	
2015	2296	Mean (%)	26.68	9.15	5.20	1.27	4.36	6.36	0.52	0.50	1.02	0.78	0.98	0.21	1.16	0.95	2.97	1.25	0.69	1.26	
2016	1008	Mean (%)	26.66	8.73	4.92	1.19	4.41	6.36	0.50	0.49	1.00	0.77	0.98	0.22	1.13	0.95	2.99	1.24	0.69	1.26	
2017	2667	Mean (%)	27.12	8.80	4.48	1.36	4.47	6.61	0.52	0.51	1.02	0.79	1.00	0.22	1.17	0.97	3.00	1.27	0.70	1.28	
									Digestibility Coefficients (%)												
									MET	CYS	M+C	LYS	THR	TRP	ARG	ILE	LEU	VAL	HIS	PHE	
									Swine	83	75	76	63	72	76	80	78	85	57	79	82
									Poultry	86	82	85	65	72	81	82	80	86	78	74	80

SOYBEAN MEAL

Region	n	STAT	Crude Protein	Oil (EE)	Sugar	Ash	Crude Fiber	MET	CYS	M+C	LYS	THR	TRP	ARG	ILE	LEU	VAL	HIS	PHE	
All Regions	253	Mean (%)	46.12	2.01	10.80	6.58	3.63	0.62	0.67	1.30	2.87	1.79	0.64	3.38	2.11	3.50	2.21	1.20	2.32	
		SD	0.65	0.32	0.38	0.12	0.36	0.01	0.01	0.02	0.04	0.02	0.010	0.05	0.03	0.05	0.03	0.02	0.04	
		CV (%)	1.41	15.92	3.52	1.82	9.92	1.61	1.49	1.54	1.39	1.12	1.56	1.48	1.42	1.43	1.36	1.67	1.72	
		Min (%)	44.53	1.50	9.50	6.20	2.90	0.59	0.63	1.22	2.71	1.71	0.61	3.25	2.02	3.37	2.12	1.15	2.23	
		Max (%)	48.26	3.50	11.40	6.90	5.20	0.65	0.70	1.35	3.01	1.87	0.66	3.55	2.23	3.69	2.32	1.27	2.46	
Western Corn Belt (IA, MN, MO, NE, SD)	154	Mean (%)	45.94	1.87	10.88	6.60	3.75	0.62	0.67	1.29	2.86	1.78	0.63	3.37	2.10	3.49	2.20	1.20	2.31	
		SD	0.51	0.18	0.21	0.10	0.34	0.01	0.01	0.01	0.03	0.02	0.010	0.05	0.03	0.04	0.02	0.01	0.03	
		CV (%)	1.11	9.63	1.93	1.52	9.07	1.61	1.49	0.78	1.05	1.12	1.59	1.48	1.43	1.15	0.91	0.83	1.30	
		Min (%)	44.53	1.50	10.40	6.30	2.90	0.60	0.64	1.25	2.75	1.71	0.61	3.25	2.02	3.37	2.12	1.15	2.23	
		Max (%)	47.17	2.30	11.40	6.80	5.20	0.64	0.69	1.33	2.94	1.82	0.66	3.49	2.17	3.59	2.26	1.24	2.39	
Eastern Corn Belt (IL, IN, MI, OH)	69	Mean (%)	46.25	2.18	10.90	6.54	3.39	0.63	0.67	1.30	2.88	1.79	0.64	3.39	2.12	3.51	2.21	1.21	2.33	
		SD	0.62	0.29	0.37	0.16	0.25	0.01	0.01	0.02	0.04	0.02	0.010	0.05	0.03	0.05	0.03	0.02	0.03	
		CV (%)	1.34	13.30	3.39	2.45	7.37	1.59	1.49	1.54	1.39	1.12	1.56	1.47	1.42	1.42	1.36	1.65	1.29	
		Min (%)	45.09	1.70	10.00	6.20	2.90	0.61	0.65	1.27	2.76	1.74	0.62	3.29	2.05	3.41	2.16	1.18	2.27	
		Max (%)	47.51	3.10	11.40	6.90	4.00	0.65	0.70	1.35	2.94	1.83	0.66	3.48	2.18	3.59	2.27	1.24	2.39	
Southeast (AL, GA, NC)	30	Mean (%)	46.81	2.29	10.15	6.53	3.55	0.62	0.67	1.29	2.89	1.81	0.64	3.42	2.15	3.56	2.24	1.22	2.38	
		SD	0.85	0.51	0.44	0.11	0.43	0.01	0.02	0.03	0.06	0.03	0.010	0.07	0.05	0.07	0.04	0.03	0.05	
		CV (%)	1.82	22.27	4.33	1.68	12.11	1.61	2.99	2.33	2.08	1.66	1.56	2.05	2.33	1.97	1.79	2.46	2.10	
		Min (%)	44.99	1.70	9.50	6.30	2.90	0.59	0.63	1.22	2.71	1.75	0.61	3.25	2.05	3.40	2.16	1.17	2.26	
		Max (%)	48.26	3.50	11.10	6.80	5.20	0.64	0.69	1.34	3.01	1.87	0.66	3.55	2.23	3.69	2.32	1.27	2.46	
Crop Year																				
2013	418	Mean (%)	48.04	1.38	-	6.07	4.26	0.66	0.75	1.41	3.03	1.87	0.66	3.54	2.17	3.65	2.26	1.28	2.43	
2014	432	Mean (%)	46.83	1.95	10.61	6.41	4.04	0.65	0.73	1.38	2.97	1.84	0.65	3.45	2.11	3.56	2.21	1.25	2.36	
2015	433	Mean (%)	46.51	2.05	10.61	6.40	3.70	0.63	0.68	1.31	2.87	1.81	0.64	3.41	2.12	3.56	2.21	1.22	2.37	
2016	238	Mean (%)	46.54	2.03	10.66	6.63	3.43	0.64	0.68	1.31	2.88	1.82	0.64	3.43	2.13	3.57	2.22	1.21	2.38	
2017	253	Mean (%)	46.12	2.01	10.80	6.58	3.63	0.62	0.67	1.30	2.87	1.79	0.64	3.38	2.11	3.50	2.21	1.20	2.32	

Digestibility Coefficients (%)

	MET	CYS	M+C	LYS	THR	TRP	ARG	ILE	LEU	VAL	HIS	PHE
Swine	92	85	88	90	88	89	95	90	89	90	91	90
Poultry	90	79	84	89	83	89	92	87	88	87	90	89

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