



# THE RESOURCE CONSERVING INGREDIENT<sup>®</sup>

## U.S. Grain Sorghum:

### Sustainable Energy – Functional Feed Ingredient for Poultry

U.S. grain sorghum is a versatile and sustainable feed ingredient for poultry, offering a cost-effective non-GMO alternative to other cereal feed grains. Its nutritional profile, high-grain quality and growing demand make it a valuable feedstuff for the global feed milling and poultry industries.

#### Nutritional Value

- **Energy Source:** U.S. grain sorghum is an excellent source of energy composed of starch, soluble sugars and dietary fiber that can replace 100% of corn or wheat in poultry diets.
- **Protein Content:** U.S. grain sorghum is higher in crude protein than corn and can be effectively supplemented to support up to 30% of the protein requirements in poultry diets.
- **Amino Acid Profile:** U.S. grain sorghum provides a balanced amino acid profile, supporting optimal growth and development for broilers and layers.
- **Other Nutrients:** U.S. grain sorghum contains essential minerals and vitamins crucial for broiler and layer health and performance.

#### Benefits for Poultry Production

- **Cost-Effective Feed Ingredient:** Availability and consistently high grain quality make U.S. grain sorghum a cost-effective alternative to other cereal feed grains.
- **Improved Feed Efficiency:** Broilers and layers can efficiently utilize the nutrients in U.S. grain sorghum, leading to improved feed conversion ratios.
- **Functional Feed Ingredient:** When properly formulated into poultry diets, U.S. grain sorghum supports growth and development, resulting in optimal body weight, improved carcass traits, better internal egg quality, improved tibiotarsal health and function as an antioxidant or natural prebiotic to improve gut health.

#### Considerations When Using U.S. Grain Sorghum

- Always formulate using values from analyzed representative samples (e.g., chemical, NIR)
- Formulate based on digestible amino acids, using the ideal protein concept
- **Tannin Content:** Some grain sorghum varieties grown in other global regions may contain tannins, which can negatively impact feed intake and nutrient digestibility. However, all U.S. grain sorghum for feed use is considered tannin-free.
- **Processing:** Proper processing techniques, such as grinding or grinding with pelleting, are essential to improve U.S. grain sorghum digestibility and ensure optimal broiler and layer performance. Avoid over-processing to avoid anti-nutritive effects.



Scan to learn more about the benefits of sorghum for poultry

# Credit: Feedstuffs ingredient analysis table: 2024 Edition

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Ingredients <sup>2</sup>	Dry Matter	Crude Protein	Ether Extract	Crude Fiber	Calcium	Total Phosphorus	Available <sup>7</sup> Phosphorus	Ash	Poultry ME <sup>6</sup>	
	%	%	%	%	%	%	%	%	Kcal/lb.	Kcal/kg
Sorghum, milo, grain	89	9.1	2.8	2	0.04	0.29	0.1	1.7	1501	3310
Barley, grain	89	11.5	1.9	5	0.08	0.42	0.15	2.5	1247	2750
Corn, yellow, grain	88	7.9	3.5	1.8	0.02	0.24	0.07	1.1	1524	3360
Oats, grain	90	11	4	10.5	0.1	0.35	0.14	4	1157	2550
Wheat, hard, grain	88	13.5	1.9	3	0.05	0.41	0.12	2	1438	3170
Wheat, soft, grain	86	10.8	1.7	2.4	0.05	0.3	0.11	2	1372	3025

Amino Acids															
Percent availability in parenthesis <sup>8</sup>															
Ingredients <sup>2</sup>	Methionine	Cysteine	Lysine	Tryptophan	Threonine	Isoleucine	Histidine	Valine	Leucine	Arginine	Phenylalanine	Tyrosine	Glycine	Serine	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
Sorghum, milo, grain	0.12 (87)	0.17 (90)	0.23 (88)	0.09 (87)	0.27 (87)	0.29	0.42 (93)	0.47 (90)	1.42 (95)	0.35 (87)	0.45 (94)	0.36 (92)	0.31 (77)	0.4 (87)	
Barley, grain	0.18 (79)	0.25 (81)	0.53 (78)	0.17	0.36 (77)	0.42	0.23 (87)	0.62 (81)	0.8 (83)	0.5 (85)	0.52 (88)	0.31 (82)	0.44 (90)	0.46 (77)	
Corn, yellow, grain	0.16 (93)	0.17 (84)	0.23 (83)	0.06	0.31 (93)	0.24	0.24 (93)	0.36 (87)	0.95 (95)	0.37 (91)	0.37 (90)	0.28 (95)	0.32 (76)	0.40 (81)	
Oats, grain	0.2 (89)	0.31 (84)	0.48 (86)	0.17 (75)	0.33 (83)	0.35	0.22 (89)	0.62 (88)	0.9 (89)	0.82 (91)	0.62 (89)	0.21 (83)	0.59 (81)	0.61 (82)	
Wheat, hard, grain	0.25 (87)	0.3 (87)	0.4 (81)	0.18	0.35 (83)	0.41	0.17 (91)	0.69 (86)	1.0 (91)	0.6 (88)	0.78 (92)				
Wheat, soft, grain	0.2 (89)	0.27 (88)	0.35 (82)	0.15	0.34 (81)	0.3	0.30 (87)	0.51 (85)	0.78 (90)	0.55 (90)	0.52 (90)	0.24 (88)	0.55 (82)	0.55 (90)	

Vitamins												
Ingredients <sup>2</sup>	Carotene	Vitamin A	Vitamin E	Thiamin	Riboflavin	Pantothenic Acid	Biotin	Folic Acid	Choline		Niacin	
	mg/kg	IU/g	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	mg/kg	ug/kg	mg/kg	
Sorghum, milo, grain	-	-	12.2	3.9	1.2	11	180	200	678	-	42.7	
Barley, grain	-	-	36	5	2	6.4	200	397	1027	-	57.2	
Corn, yellow, grain	2	1.7	22	2.6	1.1	3.9	80	116	1100	-	21.5	
Oats, grain	-	-	20	6.4	1.6	14.9	300	400	1070	-	18	
Wheat, hard, grain	-	-	15.5	5.2	1.1	13.5	100	426	778	-	56.1	
Wheat, soft, grain	-	-	15.5	4.8	1.2	12.8	100	300	778	-	48.4	

Minerals										
Ingredients <sup>2</sup>	Sodium	Potassium	Chloride	Magnesium	Sulphur	Manganese	Iron	Copper	Zinc	Selenium
	%	%	%	%	%	ppm <sup>3</sup>	ppm	ppm	ppm	ppm
Sorghum, milo, grain	0.03	0.34	0.09	0.2	0.09	12.9	52	14.1	13.7	n/a
Barley, grain	0.03	0.56	0.14	0.12	0.15	16	80	8	30	0.2
Corn, yellow, grain	0.02	0.31	0.04	0.1	0.08	5	23	2.2	21	0.07
Oats, grain	0.07	0.37	0.12	0.17	0.21	38.2	70	5.9	38	0.3
Wheat, hard, grain	0.06	0.5	0.07	0.11	0.1	40	50	10.6	34	0.2
Wheat, soft, grain	0.06	0.4	0.07	0.1	0.1	30	43	9.7	28	0.1

## Comments:

1 n/a = Data not available

2 Data listed are intended to represent the ingredients shown. Due to factors that can influence individual lots, no guarantee is made that such lots will compare with the analysis in this table.

3 ppm = parts per million

4 A dash (-) indicates that the ingredient does not contain a significant amount of that item.

5 All table data are basis "as fed"

6 ME = Metabolizable Energy

7 Available phosphorus values were determined in chicks unless otherwise noted.

8 True amino acid availability coefficients were determined with cecectomized roosters.