



DDGS: The Current & Future of Animal Feed
Sh. Divya Kumar Gulati, Chairman, CLFMA of India

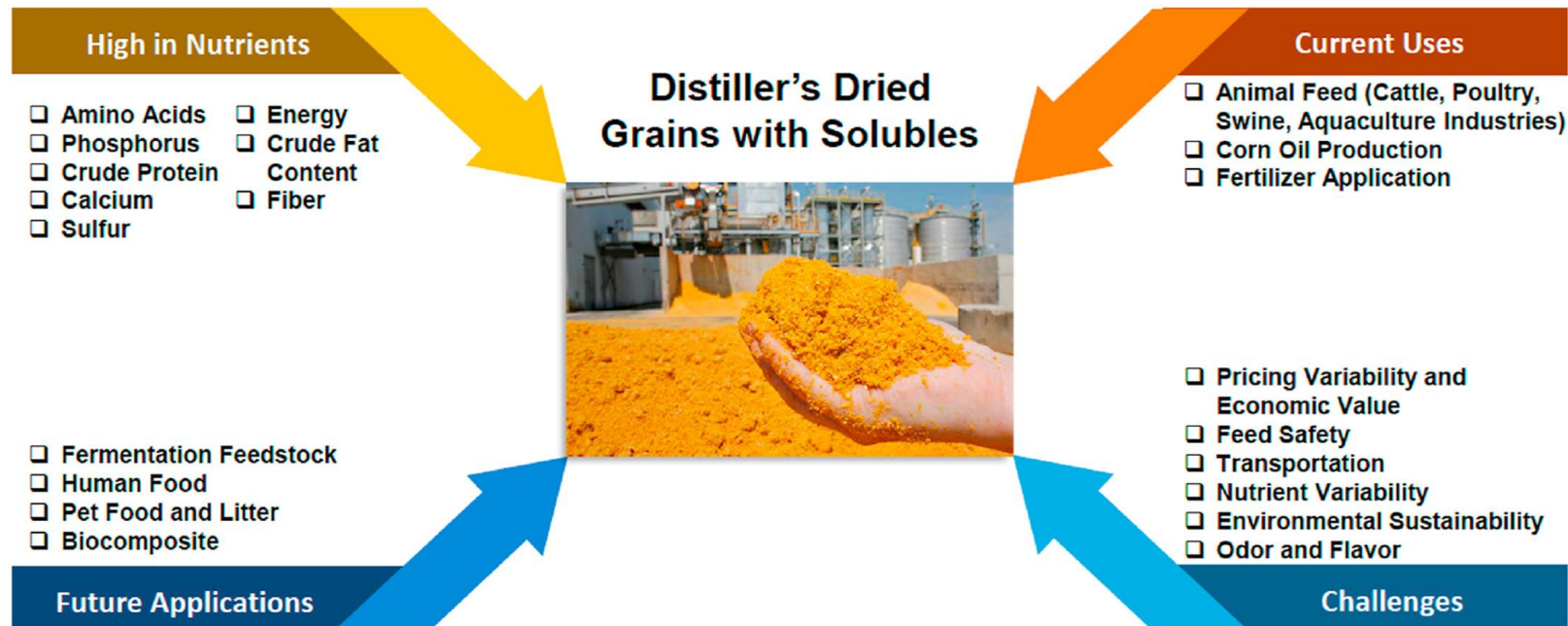
DDGS (Distiller's dried grains with solubles)

➤ What is DDGS?

A nutrient-dense co-product of the dry-mill ethanol production process. Starch in grains (mostly corn) is fermented into ethanol; the remaining protein, fiber, and oil are dried to create DDGS.

➤ Key Advantage:

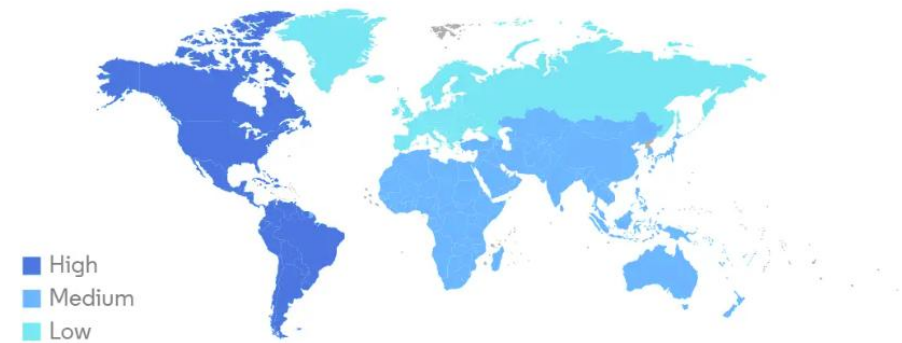
Concentration of nutrients (protein, fat, minerals) is roughly **3x higher** in DDGS than in the original grain.



Current Market Status (2025-2026)

- Global Market Valuation: The DDGS market was valued at \$16.4 billion in 2024 and is projected to reach \$26.6 billion by 2031 (7.2% CAGR).
- Regional Leaders:
 - North America: Dominates with ~45% market share due to mature ethanol industries.
 - Asia-Pacific: Fastest-growing region (7.22% CAGR) driven by India and China.
- India Focus: Market estimated at \$120 million in 2026 with an 11.3% CAGR, spurred by the E20 ethanol mandate.

Distiller's Dried Grains With Solubles (DDGS) Feed Market CAGR (%), Growth Rate by Region, 2026 - 2031



Source: Mordor Intelligence



Nutritional Profile & Species Application

➤ Core Nutrients:

Protein: 26–30% in Corn DDGS; up to 45% in Rice DDGS.

Energy: High lipid (oil) content provides metabolizable energy similar to corn.

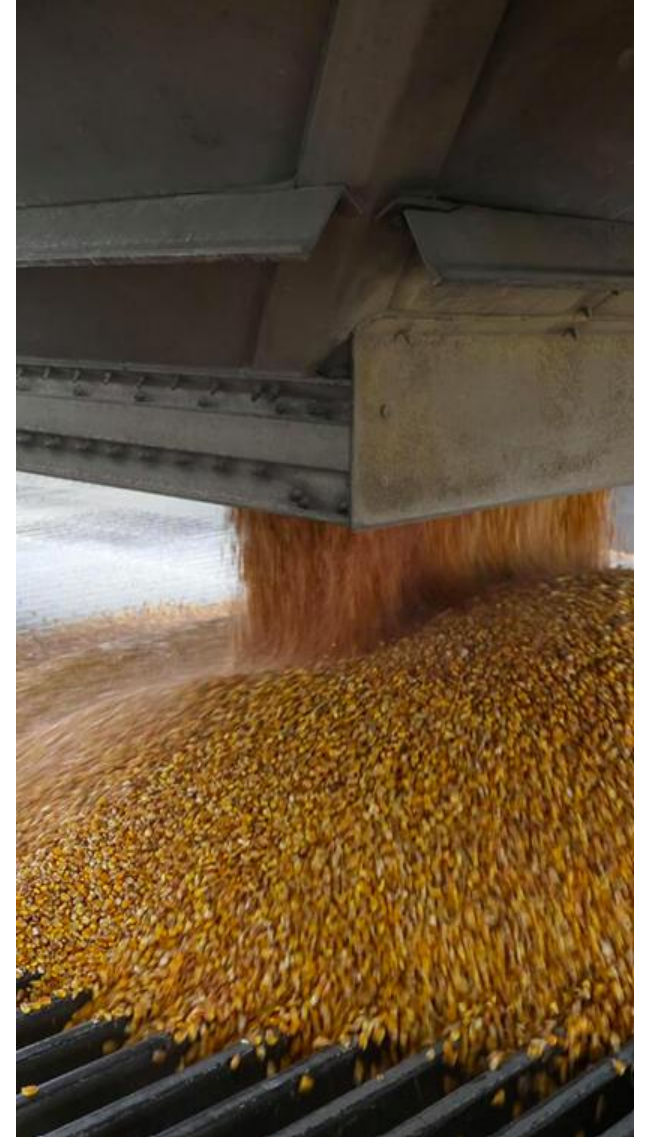
Minerals: Rich in highly digestible phosphorus.

➤ Species-Specific Benefits:

Ruminants: High bypass protein (UDP) and fiber that prevents rumen acidosis.

Poultry: Improves egg yolk pigmentation and provides cost-effective protein.

Aquaculture: Successfully replacing expensive fishmeal in carp and tilapia diets.



Key Drivers of Growth

- **Biofuel Expansion:** Rising ethanol blending mandates (e.g., E20 in India, RFS in USA) directly increase DDGS availability.
- **Cost-Effectiveness:** Typically maintains a 15-20% cost advantage over traditional protein meals like soybean meal.
- **Sustainability:** Reduces the environmental footprint by repurposing industrial by-products into circular food chains.

Current Challenges & Risks

- Nutrient Variability: Composition varies by plant and drying temperature, requiring batch-specific testing.
- Quality Indicators: Darker color often indicates heat damage (Maillard reaction), which reduces lysine digestibility.
- Regulatory Hurdles: Inconsistent global standards for GM vs. non-GM DDGS and varying import tariffs.
- Logistics: High sensitivity to moisture during storage can lead to mold and caking.

The Future of DDGS: Innovation & Trends

- **Advanced Fractionation:** New technologies are lowering fiber and raising protein (32-35%+), making it more suitable for monogastric animals like pigs and poultry.
- **Enzymatic Enhancements:** Using specific enzymes to improve amino acid availability and standardize nutrient profiles.
- **Low-Carbon Certification:** Development of "green" certified DDGS to meet global sustainability reporting requirements.
- **Next-Gen Applications:** Exploring DDGS-based antioxidants, pet food enrichments, and even biochar for carbon sequestration

INDIA Total		2023			2024			2025		
		UNIT KG QTY	UNIT MT QTY	VALUE(USD)	UNIT KG QTY	UNIT MT QTY	VALUE(USD)	UNIT KG QTY	UNIT MT QTY	VALUE(USD)
CORN DDGS		4,13,71,320	41,371	\$1,15,21,490	26,12,18,681	2,61,218	\$5,92,01,460	29,09,20,610	2,90,920	\$6,30,77,092
RICE DDGS		8,09,90,266	80,990	\$3,35,66,524	7,43,82,169	74,382	\$2,36,57,075	10,76,10,565	1,07,611	\$2,68,08,224
				\$4,50,88,015			\$8,28,58,535			\$8,98,85,317

Summary & Conclusion

- Essential Ingredient: DDGS has transitioned from a secondary by-product to a mainstream, high-value feed staple.
- Strategic Buffer: Provides a vital economic buffer for feed manufacturers against global commodity price shocks.
- Sustainability Leader: Plays a central role in the circular bioeconomy, connecting renewable energy to global food security.