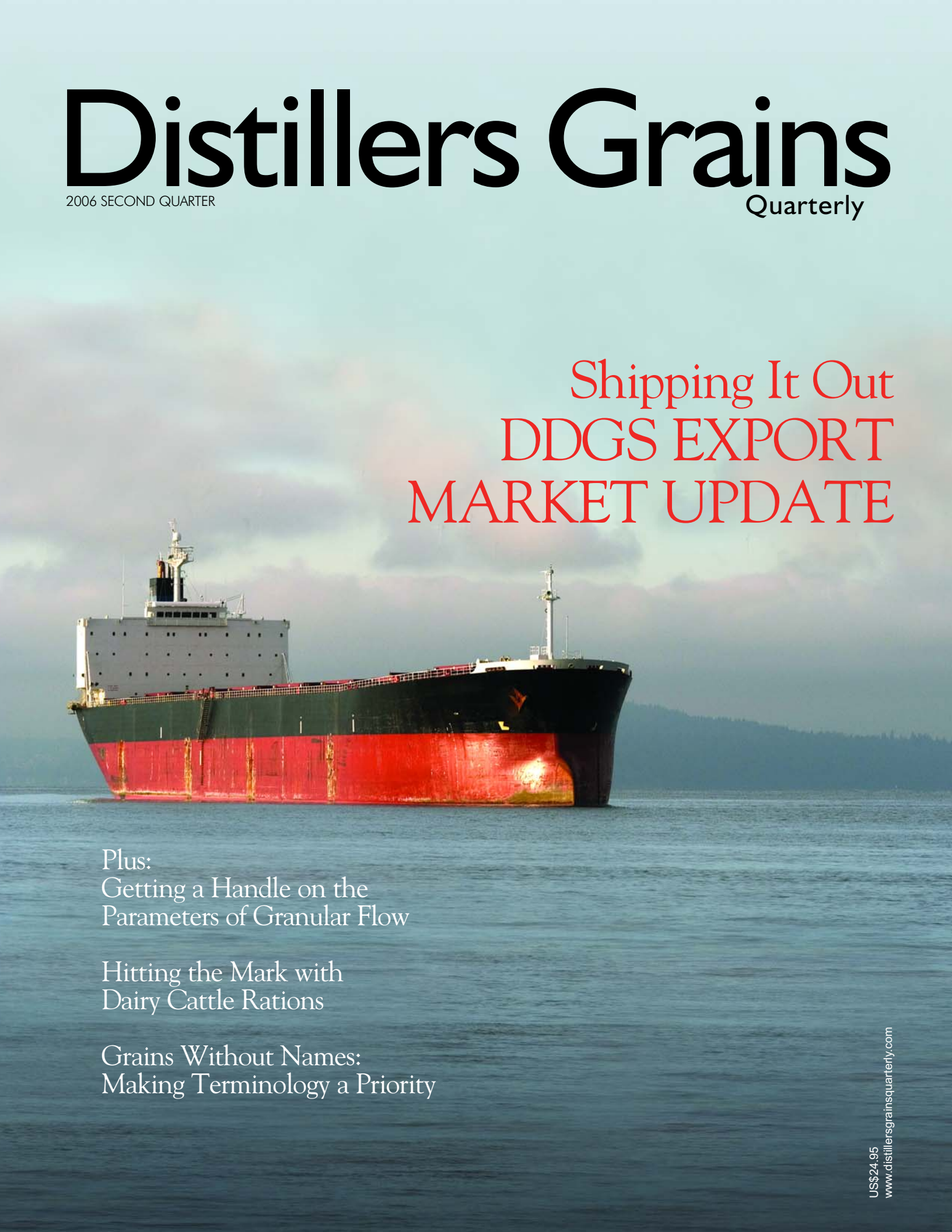
Distillers Grains Quarterly

2006 SECOND QUARTER

Shipping It Out
DDGS EXPORT MARKET UPDATE



Plus:
Getting a Handle on the Parameters of Granular Flow

Hitting the Mark with Dairy Cattle Rations

Grains Without Names: Making Terminology a Priority

US$24.95
www.distillersgrainsquarterly.com

Exporting DDGS: Opportunities and Challenges

Dr. Jerry Shurson
Department of Animal Science
University of Minnesota

The increased production of distillers grains in the United States has prompted many DDGS traders and marketing groups to explore markets and develop a customer base in a number of different countries around the world. Although the export market represents tremendous potential for DDGS use, it also represents a significant challenge compared to marketing DDGS domestically, and it requires a high degree of education and ongoing technical support.

Shurson

Opportunities

When introducing unfamiliar or new feed ingredients to new markets, education and product knowledge are the biggest factors for acceptance and sustained growth. The U.S. Grains Council (USGC) has been instrumental in conducting DDGS promotions, feeding trials and educational programs, and working with government agencies for major importers and potential users of DDGS in many countries around the world. In Asia, there have been major efforts in Taiwan, Japan, South Korea, Malaysia, Vietnam, Indonesia and the Philippines. A major DDGS promotional and educational effort will also be launched in China in March. The USGC has also been active in market development in Mexico, Canada, Morocco, Egypt, Tunisia, Jordan, Spain and the United Kingdom, as

Table 1

The Top 15 DDGS Importing Countries in 2005

Country	2004	Jan. - Nov. 2005	Percent Change	Percent of Total DDGS Exports
Ireland	165,606	178,124	+ 7.0	19.0
Mexico	63,798	120,023	+ 53.2	12.8
Spain	64,015	98,872	+ 35.3	10.6
Canada	77,917	96,077	+ 18.9	10.3
United Kingdom	156,039	66,440	- 57.4	7.1
Portugal	57,525	56,444	- 1.9	6.0
Netherlands	36,536	53,749	+ 32.0	5.7
Israel	6,366	47,935	+ 86.7	5.1
Indonesia	9,900	41,953	+ 76.4	4.5
Taiwan	6,130	37,761	+ 83.8	4.0
Malaysia	11,103	33,338	+ 66.7	3.6
Germany	5,144	26,213	+ 80.4	2.8
Vietnam	633	18,140	+ 96.5	1.9
Thailand	10	12,158	+ 99.9	1.3
Venezuela	1,726	10,579	+ 83.7	1.1
Total	**692,871**	**936,485**	**+ 26.0**	**100.0**

Source: www.fas.usda.gov/ustrdscripts/USReport.exe (January 26, 2006)

Table 2

Projected Development of Pork Production in Selected Countries Between 2002 and 2012

Country	2002	2007	2012	Percent Increase
China	43,163	47,729	53,155	23.1
Rep. of Korea	1,161	1,377	1,541	32.7
Philippines	1,095	1,200	1,253	14.4
Japan	1,200	1,224	1,213	1.1
Taiwan	915	983	1,009	10.3
Thailand	501	559	587	17.2
Indonesia	413	480	520	25.9
EU	17,930	18,370	19,040	6.2
United States	8,969	9,396	9,857	9.9
Brazil	2,356	2,723	3,038	28.9

All figures represented in 1,000 metric tons
Source: Food and Agricultural Policy Research Institute (2002)

Table 3

Projected Development of Broiler Production in Selected Countries Between 2002 and 2012

Country	2002	2007	2012	Percent Change
China	5,460	6,317	7,221	+ 32.3
Thailand	1,320	1,574	1,679	+ 27.2
Japan	1,040	1,086	1,071	- 1.3
Philippines	602	708	758	+ 25.9
Indonesia	565	654	738	+ 30.6
Taiwan	611	640	670	+ 9.7
Republic of Korea	433	541	628	+ 45.0
EU	14,509	16,110	17,565	+ 21.1
United States	7,040	8,020	9,180	+ 30.4
Brazil	6,750	6,952	7,305	+ 8.2

All figures represented in 1,000 metric tons
Source: Food and Agricultural Policy Research Institute (2002)

well as the Caribbean Basin countries. In 2006, efforts will be devoted to developing DDGS markets in the former Soviet Union, Peru and Ecuador.

According to USDA Foreign Ag Statistics, U.S. DDGS exports increased by about 26 percent in 2005 compared to 2004 (Table 1). Of the total U.S. DDGS exports in 2005, 52.7 percent went to Ireland, Mexico, Spain and Canada. Ireland, Spain, the United Kingdom and Portugal have been the primary export markets for U.S. DDGS for many years. Countries with the greatest increase of DDGS imports were Thailand, Vietnam, Israel, Taiwan, Venezuela, Germany, Indonesia and Malaysia. However, with the exception of Germany, Thailand and Israel, none of the remaining countries imported any U.S. DDGS prior to 2004. Much of the reason for the increased U.S. DDGS imports in Vietnam, Taiwan, Indonesia and Malaysia can be accredited to the USGC's DDGS promotion and educational programs that targeted these countries. This illustrates how important targeted and coordinated educational programs are for developing new export markets.

Countries in Asia and South America appear to have the greatest current and future potential for DDGS use compared to other countries around the world, and it appears that most of the DDGS usage will likely go into the swine and poultry industries in most of these countries. The need for education and technical support to expand DDGS use in the swine and poultry sectors is often greater than for cattle because of the importance of using nutrient digestibility information when formulating commercial diets. As shown in Table 2, China will continue to be the largest pork production country in the world with production expected to increase by 23 percent from 2002 to 2012. Korea, Indonesia, Thailand, Philippines and Taiwan are also projected to undergo significant growth of their pork industries by 2012. Therefore, targeting the swine industry in these countries could greatly expand DDGS exports in the future. The broiler industry in China, Thailand, Philippines, Indonesia and Korea is also expected to expand dramatically by 2012 (Table 3). As shown in Table 4, Asia is expected to produce about 63 percent of the world's eggs by 2012.

Table 4

Projected Regional Development of Egg Production Between 2001 and 2030

Country	2002	2007	2012	Percent Increase
Africa	2.08	3.21	5.13	146.6
North America & Central America	7.81	8.76	10.74	37.5
South America	2.92	4.13	5.82	99.3
Asia	33.92	43.37	56.62	66.9
Europe	9.65	10.64	11.22	16.3
Oceania	0.22	0.34	0.41	86.4
World	56.60	70.45	89.94	58.9

All figures represented in 1,000 metric tons
Source: GILLIN (2002)

Figure 1

Comparison of Moisture, Crude Protein, Fat, and Fiber Levels Between U.S. and Chinese DDGS Samples (100% Dry Matter Basis)

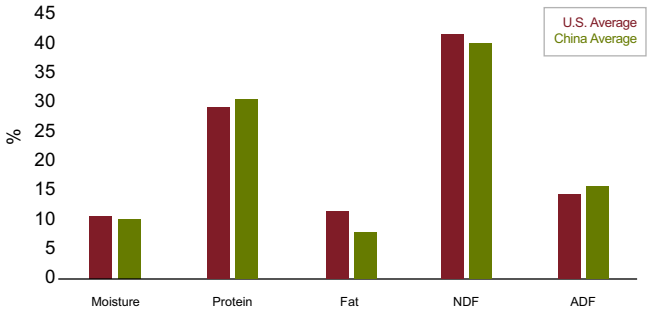


Figure 3

Comparison of the Macro-Mineral Content of U.S. and Chinese DDGS Samples

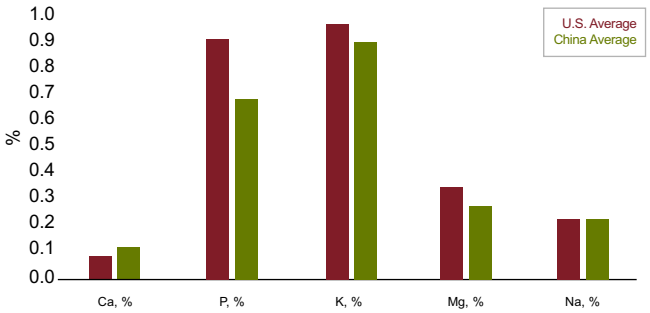


Figure 2

Comparison of Selected Essential Amino Acids in U.S. and Chinese DDGS Samples (100% Dry Matter Basis)

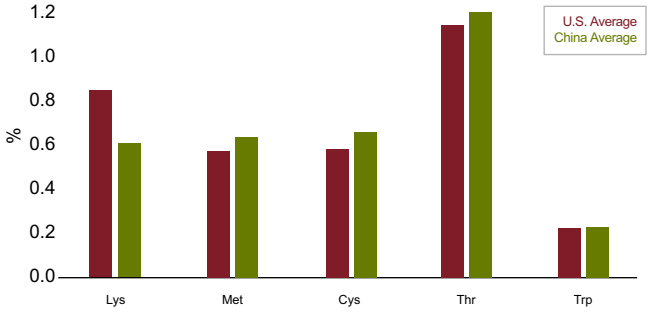
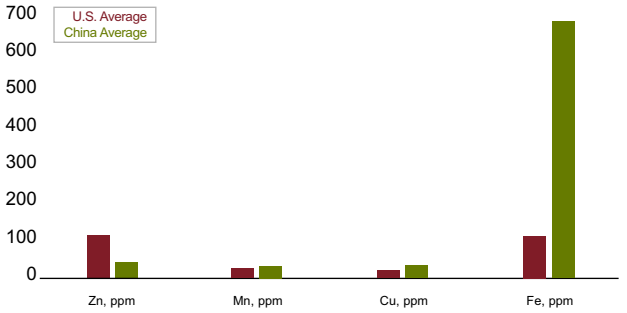


Figure 4

Comparison of the Micro-Mineral Content of U.S. and Chinese DDGS Samples



Challenges: differentiating quality and value among competing sources of DDGS

Price is always the ultimate factor that determines whether a feed ingredient will be purchased relative to other competing ingredients. Pricing agreements involve a guaranteed minimum level of crude protein and/or fat. However, from a monogastric nutrition point of view, the level and cost of crude protein is of less interest than the levels of essential amino acids, particularly lysine. Energy, essential amino acids (e.g. lysine) and phosphorus content of feed ingredients are the primary cost determinants in swine and poultry diets.

One of the main competitors, besides corn and soybean meal, for U.S. DDGS in the Asian markets is Chinese DDGS. We have been working closely with the USGC in collecting and analyzing samples of Chinese DDGS currently being used in many Asian countries, and a summary of nutrient composition differences between Chinese DDGS and U.S. DDGS is shown in Figures 1, 2, 3 and 4. Chinese DDGS is priced lower—partly because of lower freight cost—than U.S. DDGS, and it typically has a higher level of crude protein (Figure 1). Therefore, there is a perception that Chinese DDGS is a better value than U.S. DDGS among Asian buyers. However, Chinese DDGS is substantially lower in fat content, which reduces its energy value compared to U.S. DDGS. Furthermore, as shown in Figure 2, the lysine content—which is one of the primary factors used to formulate swine and poultry diets—is only about 72 percent of the level found in typical U.S. DDGS. This means that it would require more Chinese DDGS in a swine or poultry diet to achieve a desired lysine level compared to the amount of U.S. DDGS needed to achieve the same lysine concentration. Chinese DDGS is also much darker in color than high-quality U.S. DDGS. Recent research conducted at the University of Minnesota and South Dakota State University has demonstrated that lightness and yellowness of color of DDGS is a good predictor of high lysine digestibility for swine and

poultry. As a result, Chinese DDGS is not only lower in lysine content, but the lysine is also likely to be much less digestible.

The third cost/value determinant of DDGS is phosphorus level, especially available phosphorus. As shown in Figure 3, Chinese DDGS has 72 percent the phosphorus content of U.S. DDGS, which would also reduce its value in swine and poultry feeds. The micro-mineral content of DDGS is relatively insignificant in terms of assessing value or for use in practical diet formulations, but it is interesting to note that the iron content of Chinese DDGS is about 6.5 times higher than the levels found in U.S. DDGS (Figure 4). Presumably, this is due to iron oxide produced by corrosion of the cast iron or steel used in Chinese ethanol plants.

Additional Challenges

- Export customers complain about the lack of availability of a consistent supply, poor customer service from U.S. suppliers and difficulty in finding reliable exporters that market high quality DDGS. To solve this problem, either a system that differentiates quality and value (e.g., a grading system) must be implemented, or a system to directly connect customers to specific sources needs to be developed.
- Some export customers have the perception that the export market is a "dumping ground" for low-quality U.S. ingredients based upon bad experiences with the quality of the product they have received. Part of this unfavorable image is due to the fact that a few DDGS suppliers misrepresent DDGS quality and nutrient specifications, or blend DDGS with other ingredients.
- On the other hand, U.S. suppliers don't know—and may mistrust—export customers because some customers back out of commitments when the price decreases.
- Some U.S. suppliers view the export market as a residual market and only export when there is a surplus in the domestic market.
- The amount of documentation, time and knowledge required to meet foreign government import requirements are additional challenges that U.S DDGS exporters face.
- Product definition and tariff structures in some countries also make it difficult to build export markets for DDGS.
- Currently, coordinating transportation logistics is difficult because of inconsistent transit time of railcars.
- Some ethanol plants produce a product that doesn't flow well, which causes significant unloading problems and has caused transloaders in the Pacific Northwest to refuse handling DDGS from some sources.
- There is a tremendous need for ethanol plants to implement a DDGS quality assurance program to meet the increasing demands of both domestic and export customers related to mycotoxins, product consistency, and other quality factors.

In summary, there is tremendous opportunity and potential to export increasing amounts of DDGS to a variety of countries around the world. However, to sustain this growth, many of the challenges that currently exist need to be overcome to take advantage of these opportunities. DGQ

AUTHOR Dr. Jerry Shurson is a professor of Swine Nutrition and Management in the Department of Animal Science within the University of Minnesota's College of Agriculture, Food and Environmental Sciences in St. Paul, Minn. Reach him at shurs001@umn.edu or (612) 624-2764.