



SPARKS

COMPANIES INC.

A NEW MULTI-CLIENT STUDY

CORN PROCESSING CO-PRODUCTS:

Where Will Increasing Output Be Consumed?

And at What Prices?

SYNOPSIS

Following the emergence of the U.S. corn refining industry, the ethanol industry has become the primary driver of demand growth for corn over the last decade, with ethanol now accounting for almost 10% of domestic corn utilization. Moreover, legislation that has been proposed and stands a strong chance of passing would again double ethanol production to 5 billion gallons by 2012. While this growth is generally welcomed by the agriculture sector, sales of the ever-larger volumes of co-products of corn processing are becoming a "make-or-break" issue. The need for marketing and distribution of these products will create challenges for some firms and opportunities for others. Much of the co-product volume is in the form of feed ingredients, for which traditional export outlets (mainly the European Union) have become much less attractive. This new study will assess in detail the volumes of current and future supplies of co-products, the realities of the domestic markets for such products, the potential for opening up new export markets, the geography of supply/demand and ultimately the implications for co-product prices and corn processing margins.

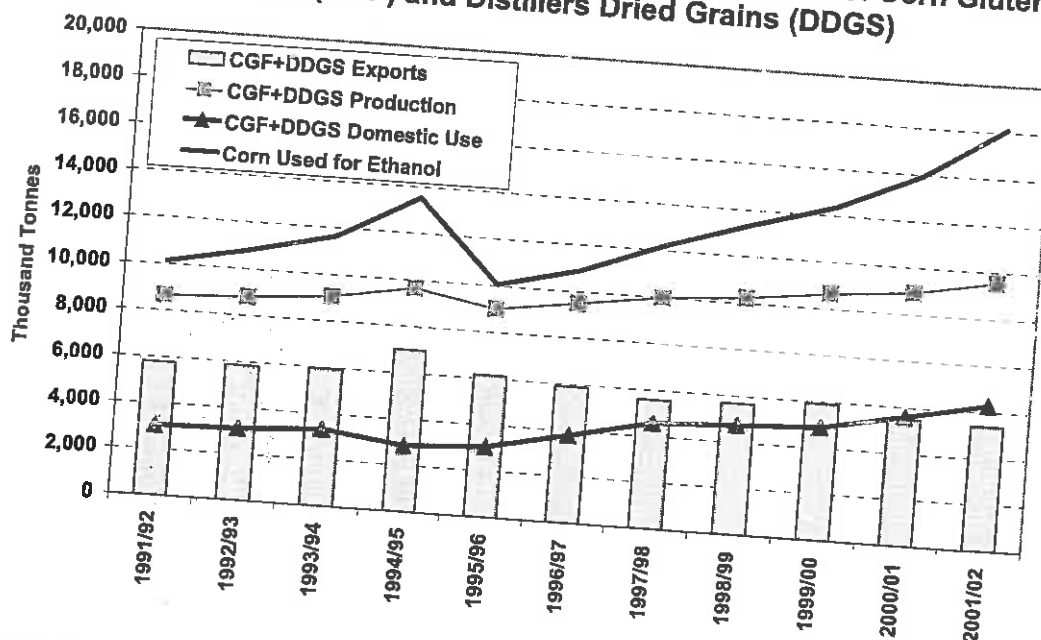
Study was conducted in 2003

4p://www.informacorn.com/Corn%20Processing%20Co-Products%20Study.pdf

BACKGROUND

U.S. ethanol production capacity has doubled since the mid-1990s, and the size of the industry could double again over the next decade if Congress passes a Renewable Fuels Standard (RFS). Ethanol already accounts for nearly 10% of domestic corn usage; more broadly, the growth of the ethanol industry on top of the previous growth in the corn-refining industry has resulted in more than one-quarter of domestic consumption being directed toward food, seed and industrial uses. While the prospects for the main products of corn processing – particularly ethanol – appear bright, a critical question is beginning to emerge: *where will the increasing quantities of co-products generated by the corn processing industry be consumed?* A directly related and equally important question is *what prices* co-products will be able to command in the market, given that lower prices are one way to “buy” additional usage.

Exhibit 1: Usage of Corn for Ethanol, and Production of Corn Gluten Feed (CGF) and Distillers Dried Grains (DDGS)



SECTOR FOCUS

This report will focus on co-products from two specific segments of the corn-processing sector:

- **Corn Refining:** comprising wet mills that produce starch and sweeteners; and
- **Alcohol:** wet and dry mills that produce alcohol for fuel and beverage uses.

The main co-products generated by wet mills include corn gluten feed, corn gluten meal and corn oil. The principal co-product of the dry-mill ethanol process is distillers dried grains. Corn gluten meal is a high-quality feed ingredient often used in poultry rations,

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while corn gluten feed and distillers dried grains are more commonly used in ruminant (e.g., cattle) rations. Both domestic and export markets exist for these feed products. Corn oil is sold at retail grocery stores or used in food preparation.

It should be noted that this report will *not* provide an in-depth look at co-products from the dry-milled food products industry, which produces corn meal, corn flour, masa flour, hominy and corn grits utilized in snack foods and breakfast cereals. This is a smaller and slower-growing segment of the corn-processing sector, so finding markets for co-products is not as pressing an issue.

QUESTIONS TO BE ANSWERED BY THE STUDY

- What additional volumes of the various co-products will need to be sold and consumed over the course of the decade?
 - What volumes of ethanol will be produced/consumed in the U.S. through 2010?
 - What will the corn grind be for other primary products (corn sweeteners, starch and beverage alcohol) in aggregate?
 - How will U.S. corn processing capacity be split between wet mills and dry mills, especially in the ethanol industry?
- What will be the implications of a larger corn grind and higher co-product volumes on the markets for major commodities, especially corn and soybean meal?
- What quantities of co-products can be sold overseas, versus needing to be sold domestically?
 - Will the European Union market for non-grain feed ingredients continue to stagnate, or will it rebound?
 - What other countries have begun to emerge as markets for co-products?
- For co-product volumes sold domestically, what prices would they receive if sold into the bulk commodity markets?
- What alternative, nontraditional uses are emerging for co-products (e.g., for distillers dried grains beyond the cattle feed market)?
 - To what extent will this raise prices above those offered in bulk commodity markets?
- What will the geographic implications of future co-product supply/demand be, especially for feed-oriented co-products, given that corn-processing facilities tend to be located in a different region of the country than livestock and poultry operations?
 - How will transportation cost and logistical issues affect f.o.b. prices for co-products at the plant?
 - To what extent could this affect the location of corn mills and livestock/poultry operations in the future, even perhaps leading to the collocation of such operations?

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- Ultimately, how will corn and co-product price changes affect the profitability of the corn-processing sector, especially regarding ethanol, which has been the driver of growth?

PRELIMINARY STUDY OUTLINE

- I. Background
- II. Ethanol Market Forecast to 2010
 - Policy Environment
 - Consumption forecast based on existing trends
 - Consumption under a Renewable Fuels Standard
 - Production capacity: existing, under construction and planned
 - Expected corn grind
 - Expected split between wet and dry mills
- III. Forecast for Other Primary Products of Corn Processing
 - General dynamics of primary product markets
 - High-fructose corn syrup
 - Glucose and dextrose
 - Starch
 - Beverage alcohol
 - Expected aggregate corn grind
- IV. Forecast Output of Main Co-Products
 - Corn gluten feed
 - Corn gluten meal
 - Corn oil
 - Distillers dried grains
- V. Export Markets for Co-Products
 - Traditional export markets
 - European Union
 - Emerging export markets
 - Expected split in co-product sales between export and domestic markets
- VI. Geographic Implications
 - Required product flow patterns
 - Implications for feed co-product prices received by corn processors
 - Implications for location of operations
 - Corn mills
 - Livestock and poultry operations
- VII. Nontraditional Uses of Co-Products
 - Food
 - Industrial

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- VIII. Price Impacts of Co-Product Availability
- Individual co-product prices
 - Prices of major commodities
 - Corn
 - Soybean meal

- IX. Conclusions and Strategic Implications
- Impacts on corn processing industry
 - Industry structure
 - Profitability of ethanol industry
 - Impacts on other agribusinesses
 - Grain merchandising
 - Feed
 - Livestock and poultry operations
 - Implications for related industries
 - Banking/finance
 - Transportation

STUDY SCHEDULE AND DELIVERABLES

- **Pre-study Conference:** A meeting of subscribers and Sparks' staff will be held in Memphis, Tennessee, to review the detailed plans for the study and to identify particular issues that clients would like to receive special attention.
- **Comprehensive Study Report and Presentation Materials:** All participants will receive the Corn Processing Co-Products Multi-Client Study, the fully documented report containing all supporting information, analysis and forecasts developed during the study. Clients will also receive copies of PowerPoint materials for presentations made in association with the study.
- **Post-Study Seminar:** A concluding, day-long seminar will be held for all clients as a group, to review the findings and implications of the study with the Sparks team.
- **Optional Presentation at Client Offices:** Sparks' staff will travel to client offices to present the final report and conduct in-house seminars, as requested. For such meetings, clients will be charged only for Sparks' out-of-pocket travel and related expenses.

PROJECT SCHEDULE

May 2003
September 2003
September 2003
September-October 2003

Kickoff meeting
Final report sent to clients
Group presentation
Individual presentations at client offices

PROJECT TEAM

Mr. Scott Richman, Vice President in Sparks' project consulting group, will serve as project director, based on his experience conducting numerous studies related to the ethanol industry and other corn-processing issues. Dr. William Motes, Senior Vice President in Sparks' Washington (DC) office, will coordinate the policy analysis segment of the study. Mr. Tom Scott, Senior Vice President and head of Sparks' Memphis-based project consulting group, will provide special guidance on effects on the agribusiness and transportation sectors and broader strategic implications. Dr. Bruce Scherr, President and Chief Executive Officer of Sparks, will serve as project reviewer, ensuring the overall quality of the report. Brief biographies for these individuals are given below.

Several other Sparks analysts and consultants will provide additional expertise. Mr. Jason Lawton, Consultant, will direct the day-to-day development of the analytic model for the ethanol market. Mr. Greg Hamish, Senior Analyst for Tropical Products, will direct the forecasts of sweetener and related markets and will participate in the co-product price analyses, and Mr. Kurt Collins, Tropical Products Analyst, will focus on the analysis related to corn oil. Dr. Don Frahm, Senior Vice President and director of Sparks' long-term commodity analyses; Mr. Mark Lynch, Senior Analyst for Feed Grains; and Brad Anderson, Vice President responsible for oilseed and products, will participate in the analyses of co-product prices and impacts on major commodity prices. Mr. Ken Eriksen, Senior Analyst for Transportation, will participate in the analysis of geographic and transportation implications.

Bruce A. Scherr, President and Chief Executive Officer. Dr. Scherr has been with Sparks since 1987 and has worked extensively with companies to develop improved price risk management procedures, to organize and manage purchasing and merchandising programs, and to assist agribusinesses and public sector institutions in strategic and tactical planning. Formerly he was president of Sparks, Jacobs, Scherr, Inc. (SJS), a sister company to Sparks, and president of Agri-Commodities, Inc., an agriculture consulting firm based in Andover, Massachusetts, which was acquired by SJS. Prior to forming Agri-Commodities, Dr. Scherr was a divisional vice president at Data Resources, Inc., where he developed and utilized for the public and private sectors the first commercially available econometric model for US agriculture. Dr. Scherr received his bachelor's degree from Rutgers University and his master's and doctorate degrees from Purdue University, all in agricultural economics. Currently, he is a member of the Board of Trustees of North American Electric Reliability Council (NERC). He served as a member of the Board of Directors for Desert STAR Inc., an electrical transmission Independent System Operator for the Desert Southwest from January 2000 through February 2002. In addition, Dr. Scherr has served as a member of the University of Tennessee's (UT) Institute of Agriculture Agricultural Development Board and UT's Committee for the Future. He is a member of several honorary research and agricultural societies, a member of the National FFA Foundation Sponsors' Board 2000 through 2001 and a former advisor to the President's Council of Economic Advisers and National Aeronautics and Space Administration.

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William C. Motes, Senior Vice President. Dr. Motes, located in Sparks's Washington, D.C., office, has primary responsibilities including client consulting for international commercial clients and development projects. Formerly, he was a principal member of Economic Perspectives, Inc. and served as director of policy analysis for the Secretary of Agriculture (1979-81). He was associate director of USDA's Budget and Program Evaluation Office and also was legislative assistant for agriculture for US Senator Dick Clark. He holds degrees in agricultural economics from Kansas State University and received his doctorate in agricultural economics from Iowa State University.

Thomas P. Scott, Senior Vice President. Mr. Scott is head of Sparks's Memphis-based Project Consulting Group. Specialized work has included business strategy, agribusiness economic development, feasibility and site selection work, and various market analyses. In addition to work in North America, Mr. Scott has extensive experience in the agribusiness sectors of Central Europe, Southeast Asia and South America. He has been involved in many training programs developed and delivered by Sparks and currently works with Kansas State University on the joint Sparks-KSU Agribusiness Education Program. Prior to joining Sparks, he had various assignments in management, trading, logistics and merchandising with Continental Grain Company. He received his bachelor's degree in agricultural economics and business from Cornell University and a master's degree in business administration from the Amos Tuck School of Business Administration at Dartmouth College where he was an Amos Tuck Scholar.

Scott A. Richman, Vice President. Mr. Richman provides management consulting services to agribusinesses, food companies and related associations, with emphasis on financial feasibility studies, business plans and the positioning of products within specialized markets. Additionally, Mr. Richman has substantial experience in performing economic impact analyses and constructing market forecasts. Mr. Richman has worked extensively with the agricultural biotechnology, grain processing, and meat packing industries on such projects as an analysis of the economic impact of herbicide resistant crops, long-term forecasts of the ethanol market and the formation of a pork cooperative. In addition to work in North America, Mr. Richman has participated in business planning efforts in Poland. He received his bachelor's degree in economics from Vanderbilt University and his master's degree in international affairs at Columbia University where he specialized in international business.

STUDY FEES

The fees for participating in the study are US\$9,500 for current Sparks clients and US\$12,500 for non-clients. The fees entitle subscribers to receive the comprehensive Corn Processing Co-Products Multi-Client Study and to attend the study kickoff meeting and the group presentation. The costs of participants' travel to the kickoff meeting and post-study seminar, as well as the expenses for Sparks' staff travel to companies' offices for individual presentations (optional), are not included in the study fees indicated above.



ENROLLMENT FORM

Yes, I want to participate in the **Corn Processing Co-Products Multi-Client Study**. I understand that the cost of the study is US\$9,500 for current Sparks clients and US\$12,500 for non-clients. One-half will be billed upon initiation of the study and the remainder upon receipt of the final report.

FAX to (901) 766-8158

Please have someone contact me to provide further information.

Name: _____ Signature: _____
Title: _____
Company: _____
Street Address: _____
City, State, Zip: _____
Telephone: _____ Fax: _____
E-mail Address: _____

Return this form to:
Mr. Scott Richman
Sparks Companies, Inc.
775 Ridge Lake Blvd., Suite 400
Memphis, TN 38120
Phone: 901-766-4594
Fax: 901-766-8158
srichman@sparksco.com

