Lysine: A Case Study in International Price-Fixing

by

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LYSINE

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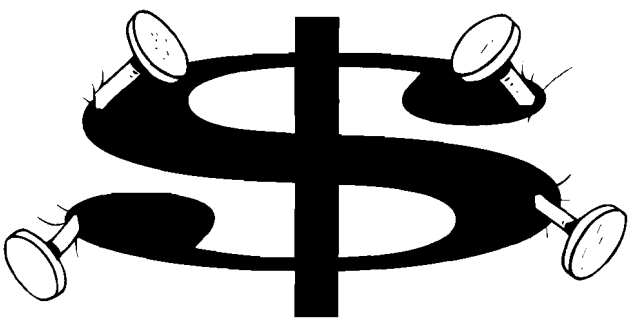


by John M. Connor

On 14 October 1996 in U.S. District Court in Chicago, Archer Daniels Midland (ADM) company pleaded guilty to price-fixing in the world market for the amino acid lysine. In the plea agreement, ADM and three Asian lysine manufacturers admitted to three felonies: colluding on lysine prices, allocating the volume of lysine to be sold by each manufacturer, and participating in meetings to monitor compliance of cartel members (Dept. of Justice). A corporate officer of ADM testified that his company did not dispute the facts contained in the plea agreement. In addition to precedent-setting fines paid by the companies, four officers of these companies pleaded guilty and paid hefty fines, while four more managers have been indicted and face probable fines and jail sentences for their leading roles in the conspiracy.

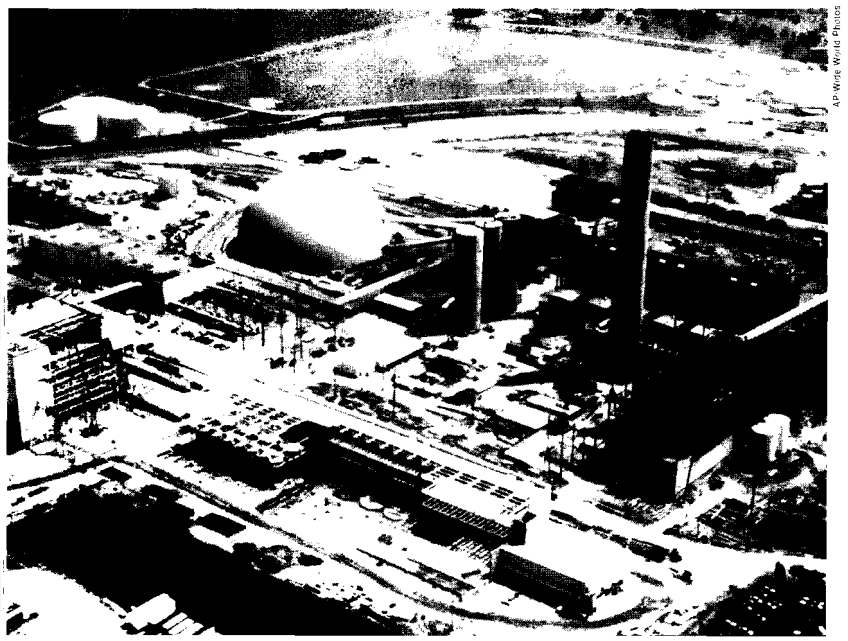
The lysine price-fixing episode was one of the largest, best documented, and most important prosecutions in modern times under the Sherman Act of 1890. The lysine cartel was striking in its comprehensive multinational dimensions. Both the structural characteristics of the world lysine market as well as the corporate management cultures of the principal conspirators helped facilitate collusive selling behavior for about three years. Antitrust officials have learned how easy it was for four determined companies with sales spanning five continents to organize a highly profitable cartel that could easily have gone undetected. Company managers will no doubt notice that the penalties for and chances of being caught fixing prices have escalated as a direct result of the lysine episode. Here I chronicle the operation of the 1992–95 lysine conspiracy and identify a number of key legal, economic, and management issues raised by the episode.

The market for lysine

Lysine, an essential amino acid, stimulates growth and lean muscle development in hogs, poultry, and fish. Lysine has no substitutes, but soybean meal also contains lysine in small amounts. Sometime in the 1960s, Asian biotechnology companies discovered a fermentation process that converts dextrose into lysine at a much lower cost than conventional extraction methods. (Documentation of these and other facts can be found in Connor 1998a and in other publications listed in "For More Information"). By the 1980s, they were importing large quantities of dextrose from U.S. wet corn millers and exporting high-priced lysine back to the United States. ADM became the largest U.S. manufacturer of lysine in February 1991 and quickly gained about half of the U.S. market. U.S. lysine consumption grew 10 percent per year in the 1990s. The U.S. market reached sales of $330 million in 1995; world sales totaled $600 million.

Archer Daniels Midland

ADM is a large and diversified company. In fiscal year 1995, ADM had consolidated net sales of $12.7 billion (ADM). During 1986–95, ADM's net sales had increased by 10.1 percent per year. ADM's major divisions are oilseed and corn starch products. The corn products division produces corn sweeteners, corn starch, alcohols, and a host of biotechnology products. Within the corn products division, fructose and ethanol are mature or maturing industries with slow growth and narrowing margins; however, the other bioproducts from corn generate much higher margins. During 1989–95, ADM invested $1.5 billion in its bioproducts division.



AP-Wide World Photos

The Archer Daniels Midland plant in Decatur, Illinois.

For a company of its size and diversity, ADM is managed by a remarkably small number of managers (Kilman and Ingersoll). Dwayne Andreas and a few top officers reportedly made all major strategic decisions from 1970 to 1997. Until late 1996, the ADM board contained a large majority of current and former company officers, relatives and long-standing close friends of Andreas, or officers of companies that supply goods and services to ADM.

Andreas cultivated the image of an international statesman primarily concerned with world hunger and national food security. His official biography credits him as one of the major forces behind the PL 480 Program (Kahn). He is identified as Armand Hammer's successor, by becoming rhe U.S. capitalist with the closest relationship with Kremlin and other Eastern Bloc leaders in the 1980s. Andreas has builr a legendary network of powerful business and government contacts since the 1960s. He was close friends with and contributor to a wide array of farm-state Congressmen and Senators, especially Hubert Humphrey and Robert Dole. Since 1979, Andreas and ADM have contributed more than $4 million to candidates for national office or their parties. ADM has benefitted greatly from the U.S. sugar program and from federal ethanol subsidies and usage requirements (Bovard).

Economic conditions facilitating price-fixing

Standard indusrrial organization textbooks and surveys provide checklists of market conditions that are known from economic theory or industrial experience to encourage overt cartel behavior. With one or two exceptions, the lysine market exhibits all the necessary conditions that facilitate price-fixing. First, market sales concentration was very high. The lysine cartel consisted of four manufacturers that produced 95 percent of the world's feed-grade lysine. During 1994, ADM supplied 48 to 54 percent of the U.S. market. Second, lysine is a perfectly homogeneous product. Third, technical barriers to entry are high. Plants are highly specialized in production (implying large sunk costs of investment), and their sizes are large relative to market demand. Patents and technological secrecy impede entry.

Fourth, market power is difficult to exercise when accurate price reporting mechanisms exist, such as auctions in public exchanges. Domestic lysine prices are almost completely hidden from public view. Fifth, lysine purchases were large and infrequent. Animal-feed manufacturers purchased lysine by the ton. Large and lumpy orders are easier for a cartel to monitor for compliance than are frequent, small transactions.

Finally, the conditions necessary to develop *tacit* collusion in the lysine market were absent. Tacit pricing cooperation (which is rarely prosecuted) develops from companies with years of experience in observing strategic moves and countermoves in an industry. ADM's large-scale entry abruptly reconfigured the nascent lysine industry. The absence of a long period of business interaction means that tacit cooperation could not be learned, whereas

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the advantages of forming a cartel can be appreciated quickly. When ADM's new plant came on stream in 1991, ADM cut U.S. lysine prices from $1.30 per pound to the $0.60 to $0.70 range and kept those money-losing low prices for about a year. The Asian exporters of lysine were losing more money than ADM because their facilities were smaller and older, their dextrose supplies were more costly, and trans-Pacific transportation costs were significant. ADM's willingness to accept and inflict losses in pursuit of a large market share may have persuaded the Asian exporters of the superior profitability of a cartel arrangement.

In sum, nearly all of the market preconditions for price-fixing were met for lysine. The major exception is the surprisingly pluralistic composition of the conspirators and their globe-girdling locations. Cultural diversity and geographic distance can no longer prevent effective collusion among multinational corporations, if in fact they ever did.

Price-fixing: chronology and mechanics

By the late 1980s, Ajinomoto, Kyowa, and one South Korean company (Sewon) were exporting about $30 million of lysine per year to the United States and charging $1.00–$2.00 per pound, much less than U.S. organic chemical companies were charging for extracted lysine. Then, ADM discovered why Asian biotechnology companies were buying so much dextrose from the United States—it is the raw material for lysine made by fermentation. In 1989, ADM committed an initial $150 million to build the world's largest lysine factory in Decatur, Illinois, and hired thirty-two-year-old biochemist Mark Whitacre to direct the new lysine division. Production began in February 1991, and a "tremendous price war"erupted (Whitacre). The U.S. price dropped from $1.30 in 1990 (or $1.20 in January 1991) to a record low of $0.64 in July 1992. ADM's cost of production is, reportedly, between $0.65 to $0.70 per pound when the plant is operating as designed. At selling prices near $0.60 ADM was losing millions of dollars per month in its lysine operations. Asian producers were suffering even greater losses per ton.

About this time, the lysine division was placed under ADM Vice President Terrance Wilson. In April 1992, Wilson and Whitacre met with Ajinomoto and Kyowa Hakko in Japan where they proposed the formation of an "amino acids trade association." By this time ADM controlled one-third of the world market. In June 1992, the first of many meetings of the "lysine association" took place in Mexico City. The three companies (and later another South Korean company) discussed raising prices, allocating production, and setting sales shares across several regions of the world.

The conspirators apparently were successful in raising the U.S. price of lysine to $0.98 for three months (November 1992 to January 1993). From October 1993 to August 1994, prices held at a steady $1.08 to $1.13 and then rose again to about $1.20 for another six months. Industry output growth was constrained to half its historical rate. A year after the conspiracy ended in late 1995, U.S. lysine exports doubled.

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Whitacre was recruited by the FBI as a secret informant (a "mole") in November 1992. Up until June 1995, he provided hundreds of audio tapes of many price-fixing meetings concerning lysine, citric acid, and fructose. The FBI secretly made additional video tapes of the "lysine association" meetings. A federal grand jury was formed in Chicago in early June of 1995 and obtained subpoenas for all information on price-fixing by ADM and its co-conspirators.

More than 70 FBI agents raided ADM's corporate offices in Decatur, Illinois, on the night of 28 June 1995; many ADM officers were interviewed in their homes that night as well. Seized documents show 1992–95 "sales targets" and "actual sales" by all members of the lysine association. Documents were subpoenaed from many other firms as well. In the three months following, ADM's stock price fell 24 percent ($2.4 billion of market value). At its October 1995 stockholders' meeting, Chairman Andreas did not allow discussion of the price-fixing charges. By February 1996, ADM had a total of at least eighty-five suits filed against it, fourteen by lysine buyers and many others by stockholders claiming mismanagement and failure to divulge material information.

In the spring of 1996, the Department of Justice's criminal case was beginning to falter. No indictments had yet been filed. The Department of Justice was targeting Executive Vice President Michael Andreas and Terrance Wilson for criminal charges, but not a single ADM officer offered to corroborate the evidence. The Asian companies also refused to cooperate. Moreover, Whitacre's credibility was tarnished by his

own admission that, while an FBI mole, he defrauded ADM of $9 million.

In April 1996, ADM, Ajinomoto, and Kyowa offered to pay "civil damages" of $45 million to the class of buyers of lysine during 1994–95. Technically, the three companies were not admitting that they were guilty of price-fixing. The class was represented by a Philadelphia law firm that made the lowest fixed-fee bid in an unusual auction held by a U.S. 7th District Court judge. The judge refused to consider bids based on conventional percentage contingency fees. Buyers had three months to decide whether to accept an assured part of the $45 million settlement immediately or to "opt-out" of the agreement and possibly win larger settlements in the future. Based on a damage estimate that was ten to twelve times higher, thirty-two large companies did, in fact, opt out. The judge was criticized for rushing to judgment civil penalties that normally follow the completion of the criminal case. Law firms operating under fixed fees have incentives to settle quickly rather than to wrest bigger settlements through protracted negotiations.

In a shocking setback for ADM, in August 1996 the three other lysine co-defendants "copped a plea." In return for lenience, the three Asian companies filed guilty pleas, and three of their executives admitted personal guilt and agreed to testify against ADM. Now isolated, ADM's lawyers began to negotiate in earnest with the Department of Justice. On 14 October 1996, ADM also agreed to plead guilty to criminal price-fixing, to pay a $70 million federal fine for its lysine activities, and to fully cooperate in helping the Department of Justice prosecute Michael Andreas and Terrance Wilson. Numerous changes in ADM's Board of directors occurred soon after: Michael Andreas was placed on "administrative leave"; Terrance Wilson resigned; and Dwayne Andreas was relieved of his duties as CEO (though he keeps his title of chairman).

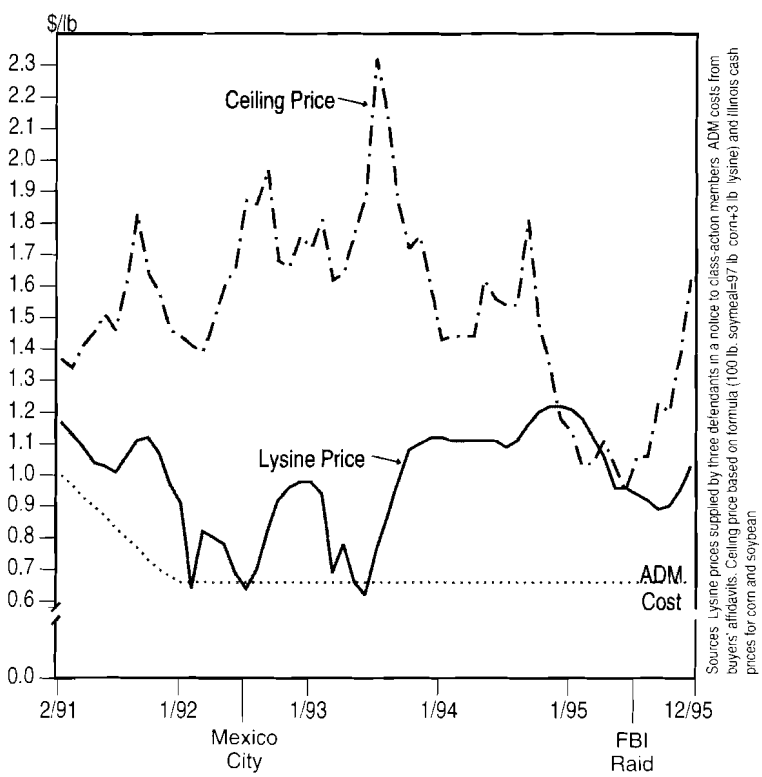

Figure 1. Monthly U.S. transactions prices of lysine, 1991–95

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The criminal fines and civil damages have cost the guilty parties at least $159 million in the case of lysine alone as of late 1997. Legal costs are around $76 million for lysine and other commodities, and shareholders' suits were settled for $38 million by ADM. The total monetary costs for price-fixing, mismanagement, and fraud for all three products (lysine, citric acid, and fructose) are $600 million and rising (Connor 1998a).

Price-fixing injuries

The courts have held that price-fixing is per se illegal under the 1890 Sherman Act. That is, in a criminal case, prosecutors need only prove that an agreement was "beyond a reasonable doubt" made to restrain prices or output; it is not necessary to prove that the agreement was in fact put into operation. A conspiracy to manipulate prices is illegal even if no economic harm can be identified. However, antitrust offenses typically do cause economic harm to many groups: rival firms, buyers, suppliers, employees, shareholders, and other stakeholders. Plaintiffs in a civil antitrust case bear a heavier evidentiary burden of proof than in a criminal case. The plaintiff must prove "with reasonable certainty" that the violation occurred (often using evidence from an earlier criminal proceeding to do so) and that it suffered a compensable harm as a result of the violation. In order to estimate damages, a plaintiff must determine the difference between the rev-

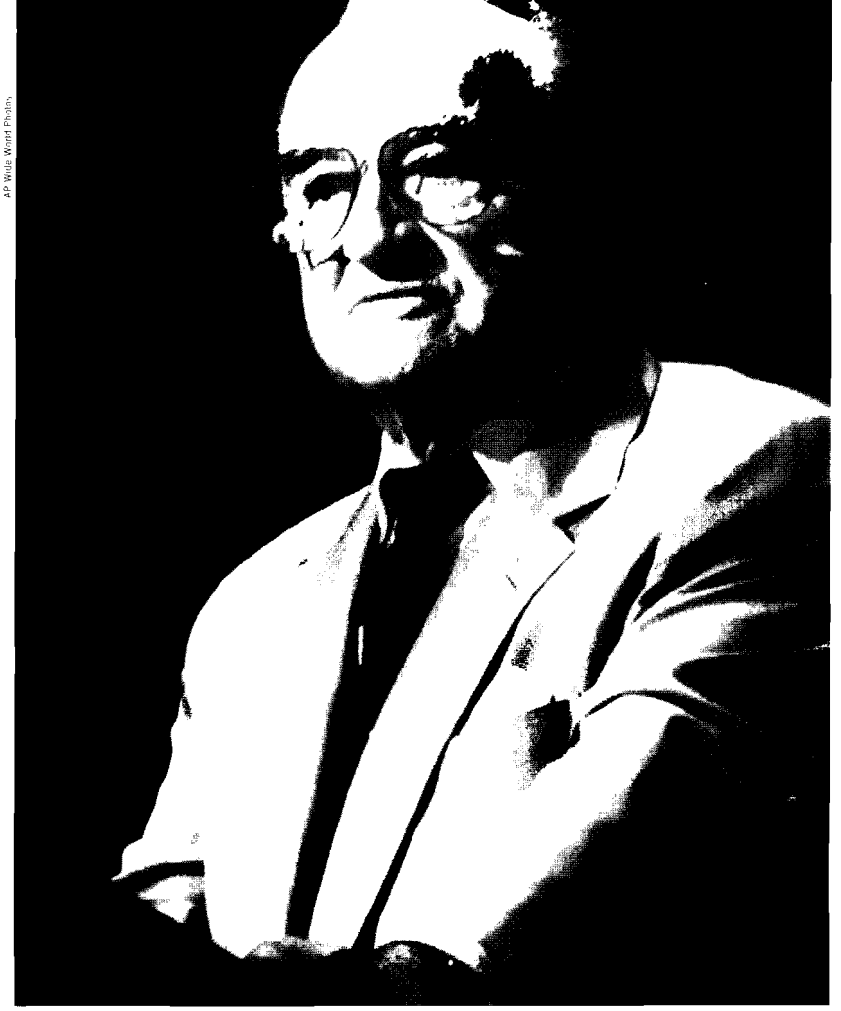
enue actually earned during the period of unlawful conduct and what would have been earned absent unlawful conduct.

Five potential groups may be harmed by price-fixing (Page). The first and clearest case of damages involves direct purchasers who pay an inflated price called the overcharge. Since the first federal price-fixing case was decided in 1906, buyers who were overcharged have had standing to recover three times the overcharge. Lysine overcharge estimates ranged from $15 million to $166 million. Second, a portion of the overcharge is passed on to the indirect buyers of products containing lysine. In the present case, hog and poultry farmers who buy prepared animal feeds containing lysine are harmed by both the higher price of animal feed and lost farm sales. Under many state antitrust statutes, indirect overcharges are recoverable in state courts, but since 1977 no standing is given to indirect buyers in federal courts. Several such lysine suits are ongoing.

A third group of buyers may be harmed. If a cartel does not contain all the producers in an industry, nonconspirators ("fringe" firms) may raise their prices toward the cartel's price. Direct buyers from noncartel sellers are harmed, but under the law only the conspirators are liable to pay damages. Thus, noncartel sellers can enjoy excess profits during the conspiracy period. This type of injury did not apply to lysine because almost all sellers in the world belonged to the conspiracy.

Those forced to buy inferior substitutes or those who reduce their purchases in response to the higher price make up a fourth group harmed by price-fixing. This rype of injury is referred to by economists as the consumer portion of the deadweight loss. Although well accepted as a social loss by economists and some legal theorists, the parties incurring deadweight losses generally have been denied standing to sue by the courts. Finally, price-fixing harms those suppliers of factors of production to the conspirators who lose sales or income due to output contraction. This loss is the remaining portion of the deadweight loss. The courts do not usually allow standing for such parties, such as workers forced into unemployment, because the injuries are viewed as indirect or remote.

Normally a civil class-action suit is settled after the conclusion of the government's case. The lysine story is more complicated because the civil class-action suit was settled three months prior to the criminal pleas. Settling the class-action suit early gave ADM two enormous advantages in its legal strategy. The criminal guilty pleas could not be entered as evidence in the class-action case, nor could the size of the Department of Justice fines be used as a guide to settling civil damages.



AP Wide World Photos

Dwayne Andreas, former chairman of Archer Daniels Midland Co., addresses a shareholders meeting Thursday, October 16, 1997, in Decatur, Illinois.

Penalties for price-fixing

Parties guilty of criminal price-fixing are sanctioned by means of fines and imprisonment. The ADM affair signaled a significanr escalation in price-fixing fines. A major change in price-fixing penalties came in 1975 when Congress upgraded antitrust crimes from misdemeanors to felonies. Under 1991 federal sentencing guidelines, any felony can be punished by fines equal to twice the harm suffered by victims. Prior to 1975, the maximum monetary exposure of corporations was three times overcharges plus $1 million; since 1995, the exposure has risen to five times the overcharges, almost a 60 percent increase.

The first application of the "two-times" felony rule in 1995 resulted in a $15 million fine for one company. The second time this rule was invoked was in October 1996 when ADM was fined $70 million for the lysine conspiracy and $30 million for its leading role in the citric-acid conspiracy. However, the Department of Justice explicitly rewarded ADM with a discounted fine because the company had agreed to cooperate in prosecuting other members of the citric-acid cartel as well as two of its own officers (Michael Andreas and Terrance Wilson). The Asian lysine producers re-

ceived even larger discounts because they agreed to cooperate with prosecutors two months before ADM did. The size of the discount awarded to the lysine producers for their good behavior is not known but could be as high as 50 percent. In addition, the Department of Justice agreed to forgo prosecuting ADM for its role in the potentially larger corn-sweeteners case. Thus, the $70 million lysine fine is a minimum indicator of the true overcharges incurred by buyers of lysine.

Given ADM's share of the lysine market, one can infer that the total overcharge on direct buyers of lysine was at least $65 million, but it could have been as high as $140 million. Sales of lysine during the conspiracy were about $495 to $550 million, so the conspiracy raised U.S. lysine prices by 12 to 28 percent above the competitive price.

Implications and final observations

The lessons for public policy and managers of multinational agribusiness firms are profound. A statement of U.S. Attorney General Janet Reno on the day ADM pleaded guilty said in part, "This $100 million criminal fine should send a message to the entire world." Measured by the widespread attention of the world's business press and by the sharp reaction of ADM's stock prices, she is certainly right. The lysine settlements demonstrate that the price of price-fixing has suddenly gone up. Moreover, the chances of being caught are now higher than ever (Bingaman). Dozens of investigations of international price-fixing have since been launched by federal authorities, and a new era of multilateral coordination among the world's antitrust agencies has begun (Connor 1998b).

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The antitrust agencies have reason to monitor wet-corn millers closely for price-fixing. Lysine and citric acid are but two of a long list of synthetic organic chemicals now being made by ADM and other wet-corn milling companies. The rapid growth of specialty chemicals made from corn starch is partly the result of entry of wet-corn millers into the traditional synthetic organic chemicals industry, which had sales of nearly $100 billion in 1995. These products include food ingredients (such as sorbitol), feed ingredients (tryptophan), and medicinals (ascorbic acid). For most specialty organic chemicals, only one to three domestic producers are active. For example, in 1994 ADM was one of three U.S. manufacturers of lactic acid, sodium lactate, and methionine. As wet-corn millers continue to move into these specialty chemical markets with their high sales concentration, the opportunities for price-fixing will increase.

The lysine conspiracy resulted in far-reaching changes in ADM's governance structure and leadership. Five of ADM's officers were facing criminal indictments in early 1998. The ADM board of directors has been transformed. Up until 1995, the great majority of the seventeen board members were insiders by anyone's definition. In 1996, eight insiders on the board resigned, but not all of their replacements pleased the stockholders. A resolution by institutional shareholders of ADM that would have imposed stricter guidelines in selecting outside directors nearly passed at ADM's 1996 annual meeting. In April 1997, Dwayne Andreas relinquished his title of CEO to his nephew, G. Allen Andreas.

Antitrust prosecutors tend to target companies like ADM that lead their industry. Targeting high-profile companies is a wise use of constrained administrative resources because it increases the deterrence effect. Moreover, the Department of Justice imposed sanctions on ADM that have markedly changed the rules of the price-fixing gambit. Since 1996, price-fixers have faced public penalties and private damages that are five times their illegal profits, far higher than their previous exposure. If the "two-times" rule for fines is fully applied, then patient private plaintiffs will have a clearer guide to the treble damages they may seek. Thus, the new penalty guidelines could lower the negotiation costs of private antitrust suits.

Perhaps the most important lesson of the lysine conspiracy for antitrust enforcers is the ease with which an international cartel was formed and executed. The two smaller lysine producers claimed that they were coerced into joining the cartel by leaders ADM and Ajinomoto, and leaked tapes of the price-fixing meetings corroberate the charge (Eichenwald). With just two or three top managers from each company attending meetings around the world every few months, the conspirators were able to arrive at complex allocations of production from at least six plants, exports from three countries, and sales to five continents that were, if not optimal, highly profitable. The cartel hung together in the face of gyrating and uncontrollable soybean and

corn prices and a presumptive cultural chasm between ADM and its three co-conspirators. Were it not for a well-placed whistle-blower, the lysine cartel might still be in full operation today.

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Because it was an international conspiracy, overcharges as large as those in the United States were very likely incurred by buyers of lysine in other parts of the world. In mid 1997, antitrust authorities in the European Union and Mexico opened duplicative investigations of lysine price-fixing. The multinational character of the lysine conspiracy underscores the need for multinational legal approaches (Connor 1998b). Recent court decisions make it clear that U.S. authorities can seek redress from off-shore conspiracies that affect U.S. trade or domestic commerce. However, effective national prosecution is unlikely unless the target companies own significant assets in the affected nation's territory. Bilateral antitrust protocols have been signed and formal annual meetings have recently begun among the U.S., Japanese, European Union, and other antitrust agencies, but so far cooperation is limited to gathering and sharing of information. It is difficult to envisage a legal structure that would permit multilateral prosecutions of international cartels. ◼

■ For more information

Bingaman, A.K. "The Clinton Administration: Trends in Criminal Antitrust Enforcement." Speech before the Corporate Counsel Institute, San Francisco CA, 30 November 1995 (Available on-line: gopher://justice12.usdoj.gov:70/00/atr/talks/speech.n30).

Bovard, J. *Archer Daniels Midland: A Case Study in Corporate Welfare.* Policy Analysis No. 241. Washington DC: The Cato Institute, September 1995.

Connor, J.M. *Archer Daniels Midland: Price Fixer to the World.* Staff Paper SP 98-10, Department of Agricultural Economics, Purdue University, May 1998a.

——. The International Convergence of Antitrust Laws and Enforcement. *Rev. Antitrust Law and Econ.* in press, 1998b.

Department of Justice. "Archer Daniels Midland Co. to Plead Guilty and Pay $100 Million for Role in Two International Price-Fixing Conspiracies [Online]." (Available online: http://www.usdoj.gov/gopherdata/atr/press_releases/1996press/508at.htm).

Eichenwald, K. "The Tale of the Secret Tapes: Bizarre and Mundane Mix at Archer Daniels." *New York Times*, 16 November 1997, pp. 3–13, Sec. 3.

Kahn, E.J. *Supermarketer to the World: The Story of Dwayne Andreas, CEO of Archer Daniels Midland.* New York: Warner Books, 1991.

Kilman, S., and B. Ingersoll. "Risk A Verse." *Wall Street Journal*, 27 October 1995, pp. A1.

Page, W.H., ed. *Proving Antitrust Damages: Legal and Economic Issues.* Chicago: American Bar Association, Section of Antitrust Law, 1996.

Whitacre, M. "My Life as a Corporate Mole for the FBI." *Fortune*, 4 September 1995, pp. 52– 68.

The author assisted a few lysine buyers in estimating the overcharges they may have incurred as a result of the conspiracy. All statements of fact in this article are based on publicly available materials, and all opinions expressed are Dr. Connor's own and not necessarily those of any party or lawyer involved in the legal proceedings discussed in this article. The author thanks Jay Akridge, Mike Boehlje, Peter Barry, Lee Schrader, Chris Hurt, and anonymous reviewers of Choices *for their constructive comments. Purdue Journal Paper No. 15439.*

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