

## Chapter 5: The Citric Acid Conspiracy

### Introduction

In January 1991, Terrance Wilson and Barrie Cox, two top-level officers of the large U.S. agribusiness firm Archer Daniels Midland Company, flew to Europe to meet with representatives of the three largest European manufacturers of citric acid. The two men were unlikely companions. Wilson was a Corporate Vice President and the President of ADM's big corn products division. He had joined ADM decades before, straight from the U.S. Marine Corps, and had worked his way up from near the bottom of the corporate ladder to be only one step removed from the giant company's powerful chairman, Dwayne O. Andreas. Although Wilson lacked a college education, his fierce loyalty to the Chairman and dogged pursuit of ADM's interests had yielded him a position of power and responsibility in ADM unmatched by all but three other officers.

If Wilson by all accounts was untutored, blunt, and profane, British born Barrie Cox was his opposite. Cox was urbane, educated, and knew languages. Unlike Wilson, he had spent nearly his whole career in the citric acid industry, but he had been employed by ADM for only a few weeks. The month before, ADM had acquired Pfizer Company's citric acid business, including two of its three citric acid manufacturing plants. Pfizer had pioneered the manufacturing of citric acid in the United States seventy years earlier. Barrie Cox had worked in marketing citric acid for 21 years in Pfizer's New York headquarters and was among the few of Pfizer's employees selected to keep their jobs and to move to ADM's headquarters in Decatur, Illinois. Among his assets was his personal acquaintance with the managers of the citric acid businesses owned by the leading European chemical manufacturers. In fact, during his late-1999 job interview with Michael Andreas, Cox had been quizzed about the extensiveness of his personal contacts in the European industry. In Cox's first month on the job, his boss Wilson had asked him to set up meetings with

the world's three largest citric acid makers: Hoffmann-La Roche; Jungbunzlauer, and Bayer (Tr. 2624).<sup>1</sup>

Wilson and Cox met with the top managers in charge of citric acid at the three companies near their respective headquarters: Andreas Hauri of Hoffmann-La Roche in Basel, Switzerland; Hans Hartmann of Bayer in Hanover, Germany and Rainer Bilchbauer, President of Jungbunzlauer in Vienna, Austria. Years later Cox would describe these January 1991 meetings as simply introductory, get acquainted sessions for Wilson, who was new to the industry. Very likely, Wilson described ADM's intention to modernize and expand Pfizer's biggest plant and to reduce costs by vertically integrating citric acid manufacturing with ADM's production of liquid dextrose, the primary ingredient in the manufacturing process. Wilson also probably attempted to allay any fears the Europeans might have had about ADM's well-earned reputation for hard-ball marketing tactics by saying that ADM should be a "friendly competitor" in the citric acid industry. ADM's policy in the citric acid market would be more like cooperation than confrontation.

Wilson made quick use of his new contacts. Within a month of the European trip, Wilson had arranged a meeting of the four largest makers of citric acid in the world, a group they would jokingly refer to as the G-4 (Tr. 2626).<sup>2</sup> Wilson, Cox and six other top managers of the G-4 met in Basel, Switzerland on March 6, 1991 to discuss a long list of agenda items, among them how to go about raising prices globally. The citric acid cartel was off and running.

## Triggering Events

The seminal decision in the history of the citric acid cartel was Cargill's commitment of investment funds for a new high-tech finishing plant in Eddyville, Iowa. What factors prompted that shift in corporate strategy may never be known, but the fact that it was taken in 1987 provides a few clues.

Cargill, like ADM, was a leading manufacturer of sweeteners made from fermentation of corn. Glucose corn syrup and dextrose were

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<sup>1</sup> In this book, the transcript of the 1998 trial *U.S. vs. Michael Andreas et al.* is a frequently cited source. The abbreviation "Tr." will be used as a quick reference to this source and its pages. Except for a few major books, and articles, the hundreds of published sources used to write this chapter can be found in Appendix B of Connor (2000).

<sup>2</sup> The moniker G-4 is a conscious imitation of the annual meetings of the heads of the seven largest industrial countries, the G-7. A couple of years later, a fifth company joined the cartel (CereStar Bioproducts, NV) whereupon the cartel rechristened itself the G-5. The term G-4 will be employed throughout this chapter to describe the citric acid cartel.

mature and slow growing product lines, but high fructose corn syrup (HFCS) was altogether different. HFCS was a miracle of modern science, a cheap process for converting abundant cornstarch into fructose, the sugar found in honey and fruits. Until commercial production of HFCS began in the United States in the late 1960s, fructose that approached and eventually exceeded the sweetness level of sucrose from cane sugar had never been available for purchase by the food processing industries. While its production cost in the 1980s of \$0.08 to \$0.10 per pound did not make it quite cost competitive with the cheapest imported cane sugar, the prospect of near self-sufficiency in sweeteners prompted Congress to oblige the industry by continuing to keep in place import barriers on foreign sugar.<sup>3</sup> The resulting domestic wholesale price of sugar (about \$0.16 per pound in most years of the 1970s and 1980s) guaranteed high profits for HFCS manufacturers. Continued lobbying of Congress ensured periodic renewal of this sweet deal.

From its inception, the HFCS industry enjoyed exceedingly rapid volume growth (20 to 40% per year) as industries converted from sucrose to fructose. The high point in this substitution process was the decision of the major soft drink makers to allow their bottlers to convert from sucrose to HFCS in the mid-1980s. The high growth of HFCS came to a sudden end in 1986 as the last big buyer of sucrose completed its conversion to fructose. ADM, Cargill, and the other five or six producers faced a serious crisis. HFCS would no longer grow any faster than the food processing industries as a whole (only 2 or 3% per year) after two decades of heavy growth.

Both ADM and Cargill decided to use their corn refining capacities and expertise to branch out into new sweetener-based, fast growing organic chemicals.<sup>4</sup> Adding fermentors and related equipment to create finishing capacity for new products was less expensive than building stand-alone facilities and yielded production efficiencies as well. Cargill's decision to enter citric acid manufacturing was simply one of the first of a large number of food-and-feed ingredients compatible with its biotechnology thrust. In retrospect, citric acid may have been a fairly obvious first choice among the array of possibilities. Citric acid enjoyed relatively large sales and solid volume

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<sup>3</sup> The so-called sugar program was originally designed to protect U.S. cane and beet sugar producers from low-cost foreign production. HFCS manufacturers joined forces with the U.S. sugar interests to lobby for trade barriers so as to guarantee high profits at the expense of the U.S. consumers. The program was briefly abandoned in the mid 1970's. Without the help of the HFCS industry, lobbying by sugar-beet and sugar-cane interests might not have been enough to reinstate the program.

<sup>4</sup> A partial list of such products made from corn-sweetener feedstock includes methionine, threonine, tryptophan, sorbitol, lactic acid, gluconates, monosodium gluconates, vitamins (C,E, and biotin), lysine, and citric acid. All of these products were bulk ingredients sold to food or animal-feed manufacturers, ADM and Cargill's tradition consumers.

growth in the U.S. market of 6% per year. At prices near \$0.80 per pound, citric acid sales held out the prospect of a very healthy profit margin, probably between 10 and 25% of sales, well above the company's usual returns. It is also likely that Cargill saw the two established U.S. manufacturers, Pfizer and Haarmann & Reimer, as soft targets because their lack of vertical integration imposed higher cost structures. Finally, unlike some of the other possibilities like amino acids or xanthan gum, the technology for producing citric acid from dextrose was more accessible for a newcomer. All in all, citric acid must have looked like a winner to Cargill in 1987.

There is no doubt that Cargill intended to develop a leading position in the citric acid industry. Its Iowa plant when it came on stream in mid-1990 expanded North American production capacity by 17%. The new plant took a little more than two years to build. Significant capacity expansions took place at regular intervals: 1991, 1993, and 1995. Cargill's initial U.S. capacity share eventually doubled to 33% in 1995, despite parallel expansions at ADM's North Carolina plant. Cargill was proved right in the end about Pfizer and Haarmann & Reimer. Pfizer exited the industry as soon as Cargill entered on the scene. Despite investments to improve costs up through the late 1990s, Bayer quickly lost its number one position and later exited the industry.

In an unusual reversal of their usual roles, ADM in 1990 imitated Cargill's move. ADM announced its intention to enter the citric acid industry three years after Cargill, but took over ownership of Pfizer's plants six months before Cargill began production. How much ADM paid for Pfizer's plants and technology is not known, but the bold decision put ADM well ahead of its long-time principal rival in the contest for production capacity. Due to Cargill's expansions, ADM's initial 49% of U.S. capacity declined to about 37% by 1995, but it held on to the number-one position throughout the 1990s by significant plant expansions. ADM's behavior was symptomatic of its oft-stated goal to be at least equal in size to the largest firm in all its industries. Not only did it pull ahead of Cargill in the U.S. but by the mid-1990's ADM was in solid third place globally, behind Jungbunzlauer and Bayer.

Two legal events may have contributed to ADM's decision to initiate the conspiracy in early 1991. Any price fixer must weigh the expected extra profits from creating or joining a cartel against the possible costs of being caught and punished by the antitrust authorities. There is no doubt that the conspiracy netted substantial illicit profits for all the companies involved; how large will be analyzed later. Two legal episodes probably lowered the perception about the chances of being sanctioned.<sup>5</sup> First, after

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<sup>5</sup> More accurately, firms must have some subjective perception of the chance of being discovered and sanctioned. What this subjective probability is much debated by economists. Perhaps a consensus figure might oscillate around 10%.

nearly ten years in federal court, the judge dismissed a federal civil prosecution against ADM that alleged ADM had made an anti-competitive acquisition in the HFCS industry. Second, in the early 1990s the Department of Justice was having practical difficulties in prosecuting international cartels (Daniel *et al.* 1997). Thus, many would-be global price fixers may have got the impression that agreements and meetings conducted offshore were less likely to be sanctioned than domestic conspiracies. The citric acid cartel assiduously avoided meeting on U.S. territory.

## Meeting and Methods

The opening event in the conspiracy was when Terrance Wilson and Barrie Cox flew to Europe in January 1991 to pay what was ostensibly a “courtesy call” on their big three rivals.<sup>6</sup> To the European managers, ADM’s friendly overtures must have seemed like welcome news indeed. Falling U.S. citric acid prices were having negative repercussions on their business worldwide, and the expected future expansions of Cargill and ADM seemed to promise only more grim news. ADM was probably unaware that the companies being contacted had previously colluded with Pfizer in this market and that the breakup of the previous cartel was one reason for falling prices. ADM’s hints at its readiness to cooperate would not have gone unnoticed. Wilson also expressed ADM’s interest in joining the European Citric Acid Manufacturer’s Association (ECAMA), a trade association that was to play a key facilitating role in the conspiracy. ECAMA’s parent organization is the European Chemical Industry Council, an officially recognized unit of the European Commission.

With handshakes all around and business cards exchanged, the two ADM executives returned to Decatur. Unbeknownst to Cox, Wilson afterward quickly contacted the European citric acid managers, informing them of his desire to cooperate in raising citric acid prices. Wilson set up a meeting of all four companies for March 6, 1991 in Basel, Switzerland and instructed Cox to accompany and assist him (EC 2002).<sup>7</sup>

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<sup>6</sup> Cox later testified that the two met Mr. Hauri of Hoffmann-La Roche, Hans Hartmann, of Bayer’s subsidiary Haarmann & Reimer, and Bilchbauer, Lutz, and Kahane of Jungbunzlauer (Tr. 2625).

<sup>7</sup> It is highly unlikely that Wilson did not seek approval from his boss, Michael Andreas, before initiating the conspiracy. At any rate, Andreas was heard on tape discussing the conspiracy at ADM’s headquarters. Cox later testified that he was unaware of Pfizer’s involvement in fixing critical prices in the late 1980s. Cox may have had little choice, other than resigning. An ADM employee named Wayne Brassler was fired for refusing to cooperate with the scheme.

This was the first of many meetings of the G-4 (Table 5.1). There were eight men present at the meeting, two from each company of the G-4.<sup>8</sup> Based on the severity of their sentences, it is clear that the prosecutors of the cartel considered Terrance Wilson and Hans Hartmann of Bayer/H&R to be the group's ringleaders. Hauri of Roche was eventually to take on the role of G-4's executive director. The leading role of Hans Hartmann is not hard to understand. He had been a Bayer employee for almost 40 years and president or executive vice president of Bayer's citric acid business for more than a decade. With his long industry experience, German citizenship, and residence in New Jersey, Hartmann was ideally qualified to act as a liaison between Wilson and the other German-speaking managers. Also, his subsidiary, Haarmann & Reimer, had the most to lose if an effective cartel did not emerge because it was becoming the highest-cost producer in the U.S. market.

**Table 5.1** Major Meetings of the Citric Acid Cartel, 1991-1995.

Date	Location	Notes
March 6, 1991	Basel, Switzerland	G-4 formed
May 14, 1991	Vienna, Austria (ECAMA)	
November 14, 1991	Brussels, Belgium (ECAMA)	
May 20, 1992	Jerusalem, Israel (ECAMA)	
November 18, 1992	Brussels (ECAMA)	Cerestar joins
June 1, 1993	Kildare Island, Ireland (ECAMA)	
October 27, 1993	Bruges, Belgium (ECAMA)	
May 18, 1994	London, England (ECAMA)	
November 2, 1994	Brussels (ECAMA)	Wilson's last
May, 1995	Brittenau, Switzerland	

Note: This table lists only the nine meetings that both Terrance Wilson and Barrie Cox of ADM attended and one other. At least eight of these meetings, and possibly all ten, occurred in parallel with official meetings of the European Citric Acid Manufacturers' Association (ECAMA). There were about 25 face-to-face meetings of the whole group and about a dozen bilateral meetings (Tr. 2614-2801).

The agenda for the Basel meeting included several general topics such as the reason for such low prices and the role played by surging Chinese output. The chief representative from Hoffmann-La Roche congratulated

<sup>8</sup> Besides Wilson and Cox, present were Hartmann and Yamashita from Haarmann & Reimer, Hauri and Marti from Roche, and Bilchbauer and Hummer from Jungbunzlauer. Bilchbauer was president and CEO of Jungbunzlauer; Hartmann was president of H & R; Wilson was president of ADM's corn productions division.

ADM on its recent announcement of a U.S. list price increase from \$0.65 per pound to \$0.68. However, the talk at the Basel meeting soon veered into clearly illegal territory. Violations of the Sherman Act occur if two or more individuals from independent companies knowingly and intentionally attempt to restrain a market's output or prices; it is the agreement to do so that is the crime, not any effects the agreement may have on the market (see Chapter 3). At the Basel meeting, the managers of the four companies agreed to raise their list prices in all regions of the world.<sup>9</sup> Price discussions focused on anhydrous acid, knowing that monohydrate would sell for 4 to 5% below (EC 2002). They also agreed to allow each company to grant 3% price discounts to their five largest customers.

A sales quota was established for each member of the cartel for its global sales as well as for three regions (North America, Europe, and the rest of the world). Each company was allocated a 1991 tonnage target based on its 1988-1990 actual sales volume, with an adjustment for anticipated growth. To monitor the volume agreement, each company agreed to submit monthly sale volumes by region to Hauri at Roche's Basel headquarters. Hauri's office would then compile totals and market shares and report the information back to each company. With this information, each cartel member could gauge the adherence of each other member to the allocation agreement. At the end of the year, a buy-back system would be implemented to even out discrepancies between "budgeted" and actual sales. Companies that came in over target would sell citric acid at cost to members that were under target volumes. This arrangement was kept almost perfectly by the four companies from 1991 to 1994 (EC 2002).

Finally, they agreed to meet secretly at least twice a year using the official ECAMA meetings as a cover (Table 5.1). In fact, Cox said that the cartel had about 25 formal meetings from 1991 to 1995, plus a dozen or so bilateral meetings. In addition, when things were quiet Cox had at least two telephone calls per week about cartel matters: when there was a lot of activity, calls would occur daily.

The rapidity with which such a complex agreement was hammered out is remarkable. Perhaps a surprising bit of information passed on at the Basel meeting explains why a plan emerged so quickly. Cox learned that his former employer, Pfizer, had been involved in a price-fixing scheme in the 1980's. He was not aware of it at the time and believes that it ended before the ADM takeover in December 1990.<sup>10</sup> The fact that Cox was informed

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<sup>9</sup> The G-4 had an immediate effect on list prices, but because of the impending start of production by Cargill, U.S. transaction prices did not rise for a few months after the Basel meeting.

<sup>10</sup> The two employees responsible for price-fixing at Pfizer were named Hunter and Moriarty. The conspiracy of the 1980s involved Bayer's U.S. subsidiary Miles Laboratories. The European producers were aware of the earlier price-fixing and may well have

earlier about the price-fixing scheme by the Swiss managers suggests that both Pfizer and the Swiss firms had been co-conspirators. Thus, in a sense, the 1991-1995 citric acid cartel was *re-formed* in 1991 rather than *de novo*.

The official meetings of ECAMA took place at ECAMA's headquarters in Brussels every November and every spring at a different location chosen by one of the member companies. At the open "official" meetings, speeches were made by experts on various subjects, the ECAMA secretary presided and took the minutes and industry data collected by ECAMA were discussed. These open meetings were attended by representatives of manufacturers and buyers alike. In other words, ECAMA had all the trappings of the legitimate trade association that it was.

However, at the parallel "unofficial" conspiracy meetings of the G-4, there were no agendas, no minutes, and no customer representatives present. The manufacturers' representatives at the conspiracy meetings took pains to cover up their activities by destroying any documentary evidence of their conspiracy.<sup>11</sup> These actions reveal that the conspirators knew their "unofficial" meetings were illegal. In fact, Cox testified that Wilson warned him that if the price-fixing were ever discovered, Cox would be "on his own," that is ADM would not pay for Cox's legal expenses should Cox be prosecuted (Tr.2681).<sup>12</sup>

The secret meetings of the G-4 soon became fairly routine events. Full-scale meetings were scheduled on average every eight weeks. A standard format evolved. First, the group would discuss the latest cartel sales reports, which provided information on growth and company market shares. The group then discussed price levels and trends around the world and decided whether to raise prices or keep them firm. Information about competition by companies outside the G-4 was shared. Finally, the group considered "problems affecting the group." This was a euphemism for heated debates about cheating accusations, a psychological phenomenon that afflicts nearly all nonbinding cartel organizations (Scherer and Ross

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been active participants. The prior conspiracy cannot be prosecuted because there is a four-year statute of limitations for price-fixing.

<sup>11</sup> Nevertheless, considerable evidence was available to prosecutors after the cartel was exposed. Only three ADM employees were supposed to be informed about the conspiracy (M. Andreas, Wilson, and Cox). Andreas and Wilson never cooperated by giving evidence to prosecutors, but Cox divulged his involvement to an old friend at ADM, VP of Operations Roger Dawson, who also came from Pfizer. Dawson was able to confirm most of Cox's testimony. Documentary evidence survived in the form of travel and expense records of participants at the meetings (travel to non-ECAMA G-4 meetings was damaging), faxes of monthly sales reports, and telephone records. More importantly, tape recordings of Wilson talking about the citric acid cartel were made at meetings of the lysine cartel. Just after both cartels were exposed, Wilson was taped saying that there was "bad stuff" on those lysine tapes (Tr. 2683-2685).

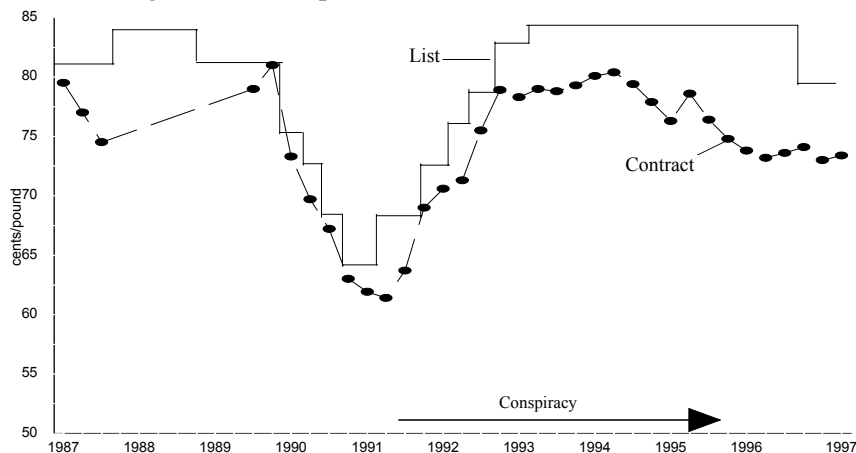
<sup>12</sup> ADM paid for the legal defense of Andreas and Wilson.



1990:236-248).<sup>13</sup> Eventually, by late 1994, or early 1995 cheating on their volume agreements became so rampant that the G-4 effectively fell apart. However, for almost four years, the group displayed enough discipline and harmony to have a strong effect on raising prices, the principal aim of the G-4.

## Citric Acid Price Movements

U.S. and global prices reached their nadir in the winter of 1990-1991 as Cargill's new plant ramped up its production (Figure 5.1). For three years (1987-1989) U.S. list prices for the most popular form of citric acid had remained unchanged at \$0.81 per pound. In anticipation of the vast new supplies from Cargill's plant, by late 1989 buyers began to hold off on their purchases. With their inventories ballooning, the two U.S. manufacturers were forced to cut their list prices four times starting in December 1989 to \$0.75. The last list price decrease occurred in July 1990 when Cargill's began sales of citric acid. Cargill announced a list price of \$0.63 per pound, a dramatic \$0.10 lower than the reigning industry price and 22% lower than the price at the end of 1989. Other producers were forced to match Cargill's low-ball price.



**Figure 5.1** List and Contract Prices of Anhydrous Citric Acid, 1987-1997

Source: Connor (1999:Table 3 and Appendix Table 1)

Note: List prices are bulk purchase delivered to Midwest points. Contract prices are for bulk orders covering at least 3 months supply needs of the buyers, f.o.b. plant transactions, average for the quarter.

<sup>13</sup> "Nonbinding" means privately enforced by the cartel members themselves. Many cartels are government sponsored and therefore binding.

By the end of 1990, Cargill's plant was reportedly producing at close to its optimal level of utilization. In February, Cargill announced a 5-cent list price increase, and its two U.S. rivals (ADM and Haarmann & Reimer) matched Cargill's price initiative.<sup>14</sup> Late winter or early spring is a good time to raise prices in any case because demand for citric acid by beverage makers peaks at that time in anticipation of peak summer beverage sales. In August 1991, Cargill again pushed through a 5-cent price increase, just as annual contract negotiations were about to commence. All the other manufacturers followed Cargill's lead. By this time, the G-4 had begun its price-fixing discussions. As Cargill was not a formal member of the G-4, its leading role in initiating the August price increase is a bit puzzling. Cargill was doing just what the newly formed cartel wished to do, but there is no evidence that Cargill raised its list price by agreements with the G-4 itself.

What is clear is that the cartel took over the responsibility of raising prices after 1991. Beginning in January 1992 and ending in October 1993, Bayer's Haarmann & Reimer subsidiary led four list price increases, each of them for 3 cents. Within a few weeks of Haarmann & Reimer's action, all other major manufacturers matched the increases. For three years, October 1993 to late 1996, the citric acid cartel achieved its central objective: raising and keeping list prices at \$0.85 per pound. Because this 35% list price increase was followed by a similar increase in transaction prices, profits rose sharply for all producers, whether members of the cartel or not (see Figure 5.1). It is perhaps significant that Haarmann & Reimer was designated to be the firm that initiated the price increases in the U.S. citric acid market. Haarmann & Reimer was probably the highest-cost producer in the U.S. industry because it ran the smallest, oldest plants. Moreover, most of Haarmann & Reimer's citric acid returns were dissipated by noncompetitive, elevated dextrose prices it had to pay to sellers in a corn-sweeteners conspiracy. Cargill was totally vertically integrated from the time it entered production, and ADM achieved the benefits of quasi-integration through optimal scheduling of rail shipments of dextrose.<sup>15</sup> Moreover, both Cargill

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<sup>14</sup> This was the price increase for which Hauri praised Wilson and Cox when they first met in March 1991. ADM's willingness to follow Cargill's lead in raising prices would be interpreted as a tangible sign of ADM's friendly, cooperative intentions. Cargill's action too must be interpreted as a friendly signal to its rivals. Cargill was reaching full capacity and thus had if anything lower production costs than in 1990, and in February was a few months early for the seasonal beverage demand increase to be felt on spot purchases.

<sup>15</sup> ADM also operated a new corn wet milling plant in eastern Tennessee that was quite close to its North Carolina citric acid plant. Cargill and ADM were members of the alleged conspiracy to raise prices of corn sweeteners during 1989 to 1995. Thus, from 1991 to 1995 ADM and Cargill may have earned monopoly profits on both citric acid and on sales of its primary input, dextrose.

and ADM had expanded their U.S. plants to a size larger than Haarmann & Reimer's biggest plant by 1993 (Connor 2001: Table 4.A.1). Thus, prices that generated merely above average profits for Haarmann & Reimer would generate extraordinarily high profits for ADM and Cargill. Even if there had been no cartel deciding on a collective price level, simply independent price leadership by Haarmann & Reimer would have resulted in the most monopoly-like prices for Cargill and ADM as price followers (Scherer and Ross 1990: 260-261).

In the United States and Europe, both spot and contract prices fell and rose in sympathy with the list price announcements. Increases in transaction prices took a month or two to take effect after a price list change, partly because of contractual price-protection clauses. From 1987 to the end of 1994, contract prices were from zero to five cents lower than list prices. Cox testified that all the increases in 1992 and 1993 were by agreement of the members of the cartel. The cartel believed that its changes in list prices and effectiveness in restraining the volume sold by the G-4, which controlled 65 to 70% of world production, was sufficient to cause transaction prices to rise. However, the cartel might not have been successful if the two largest non-cartel sources of supply – Cargill and Chinese producers – had failed to cooperate.

## The Role of Cargill

In sworn testimony in federal court, Barrie Cox stated without qualification that neither Cargill nor the numerous Chinese producers were members of the G-4 (Tr. 2674-2676). Hans Hartmann also testified as to Cargill's innocence. While these statements are literally true, the point made about Cargill is at best misleading. Later in the trial, while being cross-examined by Wilson's lawyer, Cox admitted that sometime during 1991-1995 he had "price discussions" with an individual at Cargill (TR.2750). Some of those discussions involved agreeing about the prices Cargill and ADM would bid for certain citric acid accounts.<sup>16</sup> Bid-rigging is, of course, one method of fixing prices.

Almost a year after the Chicago trial, press reports clarified Cargill's role in the citric acid conspiracy (Guebert 1999, *New York Times* June 17, 1999). On October 12, 1996, Barrie Cox was interviewed by the FBI. At the same time, he had been offered immunity from prosecution in return for his complete and truthful cooperation in the FBI's investigation

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<sup>16</sup> Why Mark Hulkower, Wilson's lawyer, chose to explore this topic is baffling. Why prosecutor Scott Lassar, in his closing argument, ignored the testimony and praised Cargill for its ethical behavior is equally baffling.

of the citric acid conspiracy. (Perjury during the interview would be grounds for removing Cox's immunity). Cox stated that he had held more than a dozen conversations with William Gruber, his counterpart at Cargill. The conversations dealt with Cargill's plans to raise prices and rig bids to certain customers. Cox said that he agreed to "go along" with Cargill's plan to raise the price of citric acid and restrain ADM's sales volume. Thus, it appears that Cargill and ADM had a bilateral price-fixing agreement separate from the G-4 cartel. Cox informed his boss Wilson about his conversations with Cargill.<sup>17</sup> The three Swiss firms may not have been explicitly informed about the Cox-Gruber conspiracy, though they might easily have inferred it. Cox says that the Swiss firms were aware of his Cargill talks. It is possible that Gruber's actions may not have been known or sanctioned at Cargill.<sup>18</sup>

The import of these facts concerns Cargill's frequent protestations that the company was innocent of price fixing in citric acid and corn sweeteners. In June 1999, Cargill's lawyer denied that the Cox-Gruber conversations ever happened. He also recalled Cox's trial testimony exonerating Cargill:

"In fact, later in the trial, the government all but held Cargill up as a poster child for good corporate citizenship" (Guebert, 1999).

Indeed, anonymous sources at the Department of Justice confirmed that neither Cargill nor Gruber were targets of the G-4 investigation. Nevertheless, Cox's trial testimony was never rebutted in any way by the defendants, even though Cox's testimony was devastating to Terrance Wilson's case (Lieber 2000).

If, as seem likely at this point, the Cox-Gruber conversations were overt price fixing, then Cargill is liable for some of the effects on prices in the U.S. market. Whether top management was aware of Gruber's actions is irrelevant for civil antitrust liability in the United States. However, because Cargill was not directly engaged with the G-4, it may not be liable for non-U.S. price effects.<sup>19</sup>

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<sup>17</sup> He said Wilson showed no surprise at the news, as if Wilson pre-arranged the bilateral deal. The Cargill-initiated price increase must be the August 1991 action. Cox told the FBI that in 1992 or 1993, the G-4 discussed "... how to get messages to Cargill, how to control them ...". Wilson offered to undertake this task..

<sup>18</sup> Michael Andreas was caught on tape saying that Cargill would be unlikely to join "the club" (the G-4) at the beginning, but that it might want to do so later.

<sup>19</sup> It is known that Cargill joined ECAMA at some point during the conspiracy and supplied ECAMA with its monthly sales volumes. It is not clear whether Cargill gave its monthly volume to the G-4 directly. If the ADM-Cargill side deal aided in the propping

Even if the Cox-Gruber conversations were not illegal, then Cargill was the legal beneficiary of monopoly profits that carry no antitrust liability. Cargill could have made more than \$100 million in excess profits during 1992-1995 from its citric acid business. Cargill is entitled to keep these profits even though the G-4 may be required to pay injured parties triple the citric acid overcharges, those resulting from sales by G-4 members as well as nonmembers.<sup>20</sup>

## The China Problem

The citric acid cartel controlled at most two-thirds of the world's supply of citric acid. Even with Cargill's passive acceptance of the cartel's pricing decisions, one set of producers appeared ready to spoil the cartel's effectiveness. Those producers were located in China, and they were intent upon the most rapid expansion of their exports by any means possible, including deep price cuts.

Production of citric acid in China began in the early 1970s. The U.S. trade press began to take notice of Chinese imports in the late 1980s, but China's official news service had begun trumpeting the rapid expansion of its citric acid industry in the early 1980s. By 1988, the Xinhua News Service claimed that citric acid plants in China had 100 million pounds of capacity, or about 10% of world capacity. Three years later, the Chinese capacity share approached 20%. Interest in Chinese joint ventures by Western citric acid manufacturers is noted as early as 1991 and accelerated in the early 1990s. (Foreign investment would also occur in India, Indonesia, and Taiwan in the early 1990s). In 1994, Xinhua reported that actual production in China in 1993 had reached 360 million pounds, but more important for the citric acid cartel was the claim that an astonishing 240 million pounds was exported. If true, these data suggested that in a remarkably short time China had moved into second place behind the United States in terms of national production (third place if one regards the European Union a single market). Most Chinese exports were destined for other Asian countries, but increasingly they were penetrating Europe and North America.

Import data confirm the looming importance of China as a source of citric acid. In 1991, when citric acid prices were at their lowest level, only 50 million pounds were imported. But when the cartel-induced prices had risen to near \$0.80 per pound in 1993, the volume of U.S. imports

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up prices or allocating volume shares of the G-4 abroad, then Cargill could be sanctioned by the European Commission, Canada, Mexico, and other competition-law agencies.

<sup>20</sup> Compensation for non-member overcharges varies across federal court districts.

increased by 90%. Most of the increase in imports came from Chinese producers. In 1994 one-third of U.S. imports of citric acid originated from China. By 1996 imports accounted for 15% of U.S. supply (USITC 2002). In the EU Chinese imports alone rose from 7% of consumption in 1991 to 24% in 1994 (EC 2002).

Production capacity and exports of citric acid from China was growing at an unsustainable pace. Chinese volume of exports grew by 34% per year from 1977 to 1994. In 1996, national production capacity reached 660 million pounds, which implies that expansion since the late 1980s was 15% per year. This was double the rate of capacity expansion by members of the G-4.

The impressive growth of China's citric acid industry is part of a larger story of the tremendous industrial growth in China that resulted from a relaxation of centralized planning and socialist economic principles. Production costs are quite low by international standards in most of China's manufacturing industries, and the citric acid industry had three cost advantages worth noting. First, construction costs for new plants in China are significantly lower than plants of comparable size in the West, a feature not lost on the leading European manufacturers when they began forming joint ventures in China in the late 1990s. Second, the starchy raw materials available for fermentation were very low in cost, probably lower than corn in the United States. The major raw material in China was sweet potatoes; some used cassava. Both raw materials are abundant in China. Third, up to at least 1995, China's central government provided export subsidies for many chemical industries, including citric acid. These subsidies may have lowered the price of Chinese citric acid exports by as much as 10%.

Chinese citric acid was also cheap because of a reputation for poor quality. The proportion of impurities in much of China's exported citric acid was too high to qualify it for use in foods and beverages, though it may have been acceptable as an ingredient in detergents. Chinese exports to the United States were probably from their best factories that had more advanced filtration equipment, yet trade reports showed the Chinese citric acid sold in the United States at a 5 to 15% discount below European imports (Connor 1998: Appendix Table 3). Chinese citric acid plants tended to be tiny by Western standards. In the mid-1990's, 95% of its more than 100 plants had capacities of less than 22 million pounds. These smaller plants had to export their citric acid at prices 30 to 40% below major Western exporters. In the late 1990s only eight Chinese joint ventures met U.S. quality standards (USITC 2002). Consolidation of production, continuing foreign investment, and upgrading of equipment has raised the quality of Chinese citric acid over time.

The 1992-1994 surge in Chinese exports put the G-4 in a bind. The more successful the cartel became in raising prices, the more Chinese imports flooded into North America and Europe. The cartel's solution to this problem was a masterful political move.

In 1993 and 1994, the United States was embroiled in a dispute with China on the issue of protection of intellectual property rights. The U.S. film, music, and publishing industries were losing millions of dollars of royalties because of widespread and officially tolerated pirating. Press reports told of lobbying of the office of the U.S. Trade Representative by one of the two U.S.-owned manufacturers of citric acid. The lobbying had the desired effect. On February 4, 1995, the U.S. Government announced that it would impose prohibitive 100% tariffs on \$1.1 billion of goods imported from China in retaliation for Chinese government intransigence. Prominent on the list of imported goods was citric acid. Although last-minute Chinese concessions prevented final imposition of the prohibitive tariffs, the mere threat had the desired effect. In 1995, Chinese exports of citric acid to the United States fell substantially from 1994 levels. Among the Chinese concessions was the removal of the export subsidies that had kept Chinese export prices low. As a result, downward pressure on cartel prices was muted, if not prevented.

The European producers attempted to apply similar pressures on Chinese exporters. Acting as though it was some sort of official government unit, in January 1995 ECAMA officials traveled to China to meet with representatives of China's National Fermentation Association. Their purpose was to warn the citric acid producers to reduce their exports to Europe, otherwise they would initiate an anti-dumping investigation with the European Commission. This threat may have had some credence with the Chinese producers because ECAMA had its secretariat located in Brussels and was affiliated indirectly with the Agriculture Directorate of the European Commission. However, no such investigation was ever publicly announced by the EC.

## **The Cartel Is Unmasked**

On the night of June 27<sup>th</sup> 1995, approximately 70 FBI agents served subpoenas and exercised search warrants on startled ADM officials, an action popularly known as a "raid."<sup>21</sup> Tiny Decatur, Illinois had never seen any-

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<sup>21</sup> Many prosecutors find the term "raid" pejorative because of its connotation of an undisciplined, savage attack. They prefer the blander expression "serving subpoenas and exercising search warrants." The temptation to yield to the concise if colorful term is irresistible.

thing like it before. The subpoenas were issued by a federal grand jury in Chicago that had been secretly investigating allegations of global price fixing in lysine, citric acid, and corn sweeteners. The FBI interviews initially yielded no useful admissions of illegal activity, but the files at ADM's headquarters contained lots of incriminating evidence of price fixing. FBI raids were repeated at the headquarters of Cargill in Minneapolis, Haarmann & Reimer in New Jersey, and about ten other companies suspected of participating in one of the three alleged cartels.

Knowledge about the citric acid cartel came to the attention of antitrust officials at the U.S. Department of Justice indirectly as a result of its undercover investigation of the lysine cartel. Unbeknownst to Michael Andreas, Terrance Wilson, Barrie Cox, and other top officials at ADM, many of their private business discussions were being recorded on tape recorders provided by the FBI to its "mole." The FBI informant was Mark Whitacre, president of ADM's Biotechnology Division and rising star at ADM. Whitacre had been cooperating since November 1992. In addition to Whitacre's own audio tapes, his information allowed the FBI to set up video cameras in hotels where some of the conspiratorial meetings were held. This videotaped evidence is an historic first in the annals of antitrust investigations.

Whitacre attempted to obtain audio tapes about the citric acid cartel by visiting Barrie Cox's office and trying to engage Cox in discussions that might have revealed inculpatory information about the operations of the G-4. Cox rebuffed Whitacre, much to the latter's disappointment (Tr. 2736-2737). Cox testified that he disliked Whitacre. He considered Whitacre "unnecessarily curious" about ADM's citric acid affairs. Citric acid was one of the few fermentation products that were not part of the Biotechnology Division, so Whitacre had no management responsibility for the product.

The FBI became aware of the citric acid cartel because Wilson repeatedly talked about it when conspiring with ADM's lysine co-conspirators. At several meetings of the lysine cartel, he urged the conspirators to form a trade association for amino-acid manufacturers that would operate just like ECAMA. For example, in June 1992 Wilson explained how the citric acid association used both formal and informal methods for tracking members' sales figures. These figures were used to allocate volume shares among the G-4 participants and confirm adherence to the share agreements. Wilson argued that the share agreements were one way that the cartel instilled cooperation and discipline among its members (Lassar and Griffin: 22-23). At later lysine meetings Wilson touted the advantage of ECAMA in providing a cover for illegal activities. He also urged the lysine producers to choose an accounting firm to independently



calculate members' sales volume so as to confirm the accuracy of monthly sales reports, just as ECAMA did.

The day after the June 27<sup>th</sup> raid, the *Wall Street Journal* and dozens of other major newspapers carried prominently placed articles on the investigation, targeted firms, and alleged illegal price fixing. Formal collusion by the G-4 had stopped a month earlier. There was an "unplanned" meeting of the G-4 in Switzerland in May 1995 in which the companies tried to put the cartel back on track, but that effort was unsuccessful.