

Case 9

Cell Tech

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In 1995, the Oregon Department of Agriculture listed algae harvested from Upper Klamath Lake and associated waterways as the state's seventh largest agricultural dollar crop with estimated overall annual sales between \$140 and \$150 million. Products made from algae were sold as nutritional dietary supplements. Although there were at least nine firms actively harvesting, processing, and marketing algae from Upper Klamath Lake, the largest of these by far was Cell Tech.

Cell Tech marketed its products through over 350,000 distributors with the trademark Super Blue Green Algae (SBGA). These products included tablets, concentrates, beverage mixes, capsules, wafers, and pet foods.¹ The fervor and enthusiasm of the distributors and users of the Cell Tech products were readily apparent from their many Web site acclamations. This enthusiasm was demonstrated in the following statement:

Anyone who eats SBGA can tell almost immediately why it is called the super food. It contains virtually all the vitamins and minerals the body requires. . . . SBGA is virtually the only plant on earth that contains all the essential amino acids. These are present in the exact proportions for optimal metabolism. . . . SBGA also contains many pigments known for their ability to boost the body's immune system. . . . Cell Tech was established for the sole purpose of harvesting, processing and marketing this valuable natural resource.²

The company's excitement and belief in the products was evident—algae were referred to as “nature's perfect food.” Algae were believed to cure many medical problems ranging from depression to allergies and arthritis. In addition, algae's proponents listed many benefits including feelings of increased energy, vitality and stamina; reduction and alleviation of stress, anxiety, and depression; relief from the discomforting symptoms of fatigue, hypoglycemia, poor digestion, and sluggishness; improved memory and mental clarity; and a wonderful feeling of well-being and stronger sense of self-direction.³

Cell Tech company publications emphasized the nutritional and health benefits of its products. Distributors were encouraged to use the products to enjoy better health, think more clearly, and have more energy.⁴ Cell Tech literature repeatedly stressed the safety and quality of its products; however, outside the Cell Tech community the detractors expressed their concerns for false claims and public safety. Eating algae was a topic that produced strong feelings and opinions in both believers and nonbelievers.

Cell Tech

Daryl Kollman was the headmaster of a Montessori school in South Carolina when he became interested in research on algae as a possible nutritional supplement. His experiences as a teacher had led him to speculate that poor nutrition was responsible for the lack of energy and the short attention span he observed in schoolchildren. He quit his job and tried for seven years to cultivate, grow, and market algae as a dietary supplement. He was not successful until someone familiar with his work sent him a sample of blue-green algae from Upper Klamath Lake. Blue-green algae flourished naturally in Upper Klamath Lake without cultivation.⁵

In 1982 Daryl and his wife Marta formed Cell Tech. The business needed capital, however, and two venture capitalists from Nevada provided the initial financing and took 100 percent ownership of the company. Daryl was hired to operate the company with an opportunity to buy it back with its profits. The Kollmans worked for several years doing the hands-on work of harvesting and processing the algae.⁶

Initial sales were disappointing, and in the spring of 1983, the investors threatened to pull out. Daryl persuaded them to let him try network marketing. They agreed, provided he took a 50 percent pay cut.⁷ In network marketing products are available only through distributors and cannot be purchased in retail stores. To become a distributor one must be sponsored by another distributor. For Cell Tech, new distributors could start with an order for as little as forty dollars plus shipping and handling charges and were paid commissions once their sales reached an annual level of \$250.⁸ Once a new distributor had been registered, he or she could order products directly from the company, which then shipped directly to the new distributor. Network marketing succeeded for Cell Tech. By the fall of 1983, Cell Tech had 26,000 distributors who were generating \$1.6 million in monthly sales.⁹

Sales continued to increase and in 1990, the Kollmans bought out the investors.¹⁰ By 1995, according to Marta Kollman, Cell Tech was processing 100,000 pounds of algae daily,¹¹ and its portion of the algae market in 1995 was reported to be \$133,600,000. In 1996 Mrs. Kollman stated, "This year, we're processing 800,000 pounds a day."¹²

In an article in *Success* magazine, the Kollmans outlined their "four principles of precision networking": (1) build an information base, (2) build a buyer network, (3) build intimate communication with distributors, and (4) make haste slowly.¹³

To build their information base, the Kollmans amassed a wealth of information about the nutritional benefits of algae. Cell Tech published a journal, *New Leaf*, a monthly newsletter, *Letter from Daryl*, and periodic catalogs. These publications were replete with information about nutritional research and the claimed benefits of eating blue-green algae. The buyer network was built through distributors for whom nutrition was an important consideration. The *Success* magazine article quoted Marta Kollman as saying, "Many of our distributors are the sort of people who belong to Greenpeace and Save the Whales, wear Birkenstock sandals and eat granola."¹⁴ Commission levels were based on cumulative sales so the financial incentives to sell the products increased as time passed. This led long-time distributors to remain interested in selling the company's products.

Cell Tech's intimate communications were achieved through the *New Leaf* magazine, the newsletter, and company teleconferences.

Computer support was available that provided distributors with up-to-date copies of their distribution networks and earnings reports on demand. (Since distributors signed up other distributors, who then signed up others, it was difficult for the initial distributors to know just who was in their downlines or “genealogies.”) Although the rapid growth of Cell Tech seemed to belie the philosophy of “make haste slowly,” the Kollmans believed that all 280 million people in the United States needed their algae.¹⁵

In their articles and newsletters, the Kollmans emphasized the physical, spiritual, and mental benefits of their products as a means for self-actualization. For example, the December 1996 *Letter from Daryl* included the following:

IT WORKS! Eating Super Blue Green Algae makes me feel different physically, mentally, and spiritually. **I love this Algae!** I've never found anything I could eat that made such a huge difference in my life. I had an instant and very dramatic change in my physiology.¹⁶

Cell Tech's harvesting facilities are located a few miles south of Upper Klamath Lake along the “A” canal whose waters came from the lake.¹⁷ The company extracts 1 gram of algae from 50 gallons of water and uses a vacuum drum to squeeze out the excess water. Cell Tech's product reaches the freezer within five minutes of being extracted from the Klamath Falls canal according to Kollman.¹⁸

By late 1996, it was estimated that distributors were selling \$18 million worth of SBGA per month to an estimated 1 million users of the product in Canada and the United States.¹⁹ The distributors did all the selling and advertised the product directly to customers by talking about their personal experiences. In an article on blue-green algae, Judith Mandelbaum-Schmid pointed out that algae eating has gone from relative obscurity into a national craze in just the past few years.²⁰

Cell Tech has worked hard to promote its image as a visionary organization whose mission is to improve nutrition throughout the world. The Kollmans also remain interested in children's nutrition. Cell Tech had a program called “The 10 percent Solution” in which it claimed to provide 10 percent of the algae harvests to “people who have the greatest need and the fewest resources.”²¹ The result of this program was the distribution of algae products to children in Nicara-

gua, Cambodia, Dominican Republic, Guatemala, as well as in the United States. Cell Tech worked with an organization called Hope L.A. Horticulture Corps. When asked if the kids really ate SBGA, the program director of Hope L.A., George Singleton, replied, "It's like a sacrament to them."²²

Klamath Lake's blue-green algae products supplied by Cell Tech were used in studies in Nicaragua where many important vitamins and minerals have been lacking in children's diets. A 1995 study distributed by Cell Tech indicated that the addition of algae to the diets of the children resulted in increased learning abilities and improved physical condition of those children taking them on a regular basis.²³ Claims were made of the Nicaraguan children's schoolwork showing great improvement. "Average test scores skyrocketed from 64 percent to 85 percent," according to Cell Tech.²⁴ But critics pointed out that any source of nutrition provided to children who are malnourished could show similar results.

Products

In 1997 Cell Tech's product line included nutritional supplements, probiotics, enzymes, animal food, and skin and hair care products. The nutritional products were sold in capsules, tablets, liquid, wafers, and powders which could be mixed with water or used as ingredients in baking or cooking other foods. These products were advertised as providing vitamins, trace minerals, chlorophyll, protein, amino acids, and beta carotene.²⁵

Probiotics contain "friendly bacteria" designed to improve the functions of the digestive system. Enzymes improve the efficiency of digestion by helping in the breakdown of the natural nutrients in food so that they can be used by the body.²⁶

Users of Cell Tech products are encouraged to begin with a six-week regimen that eventually includes all three types of products: supplements, probiotics, and enzymes. The daily cost of using Cell Tech products ranges from \$1.25 for the nutritional supplements to \$2.50 for a regimen including all three types of nutritional products.²⁷

Cell Tech offers a line of five skin care products including cleansers, creams, and moisturizers. Hair care products include shampoo, a hair conditioner, and a scalp cleanser. Company advertising empha-

sizes that the products are natural and enriched with Super Blue-Green Algae.

The animal food product is a blend of algae products that are advertised as rich in vitamins, minerals, enzymes, and amino acids. Claims stated that the product provided “building blocks for strengthening your animal’s immune system.”²⁸

Cell Tech products are part of a rapidly growing dietary supplement industry that includes vitamins, herbal products, mineral supplements, ginseng, garlic products, and algae. Annual sales of dietary supplements were estimated at \$4 billion in 1995.²⁹ Although sales of vitamins were estimated to be growing at 6 percent annually, sales of other dietary supplements were growing at 35 percent annually.³⁰

Distribution

Cell Tech’s products are sold through a system called network or multilevel marketing. In this form of marketing, products are sold only by individuals who are enlisted by other distributors. Each enlisted seller has the right to buy from the company and resell to consumers. Each seller can also become a distributor by enlisting others to sell the products. Distributors get a commission both on the sales they make to consumers and the products sold to the sellers they have enlisted. If their sellers become distributors and enlist others, the original distributor receives a commission on their sales as well. In this way, some distributors may have literally thousands of distributors and sellers in their networks and receive commissions on all their sales. Critics call this type of marketing a pyramid scheme.

Network marketing is fairly prevalent in the nutritional supplement industry. Herbalife is another company selling dietary supplements and using network marketing. The system is used in other fields. Mary Kay and Amway are well-known companies that use some variety of this method of selling.

Cell Tech distributors promote the company’s products using company brochures and video and audiotapes. Some distributors produce their own video and audiotapes. Cell Tech distributors also make extensive use of the Internet. It was estimated that in June 1997 there were approximately 4,000 distributor Web sites. Some but not all of these sites display a Cell Tech approval number.

Cell Tech distributors have praised network marketing as a fun way to make money through sharing a good product with friends, relatives, and acquaintances. They point out that traditional distribution methods also contain multiple levels, and that retail prices are often more than double manufacturing costs. Network marketing is said to be particularly effective when the product being sold requires consumers to have a lot of information before they purchase it.³¹

Cell Tech distributors receive commission checks from Cell Tech on all their sales. Cell Tech also sends commission checks to the sponsor for all products ordered by distributors they sponsored. All distributors are encouraged to sponsor other distributors so that they earn commissions on the products they sell to consumers but also on products sold to the sponsored distributors.³²

Information provided by Cell Tech distributors was that approximately 55 percent of the retail price of Cell Tech products was returned to the distributor, the distributor's sponsor, the sponsor's sponsor, etc. Price lists published by the distributor showed that Cell Tech distributors received a 25 to 30 percent margin on the products they retailed.³³

Ethical and Legal Problems with Network Marketing

Critics of network or multilevel marketing argue that it is inherently flawed. The most fundamental flaw is that the demand for any product is finite. Since network marketing distributors are always encouraged to sign up more distributors, the distribution network tends to grow exponentially. Eventually, market saturation occurs and results in distributors having products for which there are no customers. Other objections are that the network marketing companies make blatant appeals to materialism and greed, that the claims for products being sold are often unsubstantiated, and that distributors are encouraged to use their relationships with family members and friends to sign them on as distributors. The eventual collapse of the multilevel organization then brings disillusionment and alienation.³⁴

Some companies using multilevel marketing have been found to be in violation of federal law. A publication of the United States Postal Inspection Service³⁵ listed three elements which would make a multilevel marketing program illegal: (1) expectation of a monetary or other gain from participation, (2) the monetary gain being dependent

on the efforts of others in levels below you, and (3) a fee to participate.³⁵

Blue-Green Algae

Blue-green algae are a group of microorganisms known scientifically as cyanobacteria. Although early scientists thought the cyanobacteria were true algae, research resulted in their classification as a major group of bacteria in 1971. The popular name *blue-green algae* is derived from the coloring of their blooms, and the fact that both these bacteria and true algae carry out photosynthesis.³⁶

Blue-green algae are aquatic organisms that grow rapidly when several conditions occur simultaneously: a quiet or mild wind, and water having a balmy temperature that is neutral to alkaline with an abundance of nitrogen and phosphorus nutrients.³⁷ In late summer, under these ideal conditions, the blue-green algae come together to form water blossoms as they float to the surface to obtain light for photosynthesis.

One of the world's prime growing sites for blue-green algae is Upper Klamath Lake in Oregon. An estimated 100,000 tons of algae develop in this 125-square-mile shallow lake each year.³⁸ "In August and September layer upon layer of the living organisms make wide areas of Oregon's largest recreational body of water impossible to see into."³⁹ During this time, while the blooms are on the surface, the blue-green algae are harvested for human consumption. Since the 1990s a growing number of companies have harvested the algae from the lake as well as from canals south of the lake.

Federal Regulation

Under the 1958 Food Additives Amendments to the Federal Food, Drug, and Cosmetic Act, the Food and Drug Administration (FDA) regulated dietary supplements to ensure that they were safe and that their labeling was truthful. However, federal regulation of dietary supplements was severely curtailed with the passage of the Dietary Supplement Health and Education Act of 1994 (DSHEA). With this act Congress amended the 1958 law and reduced the federal role in regulating dietary supplements.

The DSHEA defined a dietary supplement as a product (1) intended to supplement the diet and containing vitamins, minerals,

herbs or other botanicals, amino acids, or combinations of these ingredients; (2) intended for ingestion in pill, capsule, tablet, or liquid form; (3) not represented as a conventional food or as the sole item of a meal or diet; and (4) labeled as a dietary supplement.

The DSHEA bans dietary supplements that contain ingredients that present a significant risk of illness or injury. It bars claims for dietary supplements when they purport to prevent, cure, or mitigate a specific disease (unless approved by the drug provisions of the Federal Food, Drug, and Cosmetic Act). Dietary supplements are required to have nutrition labeling and to be manufactured under conditions that ensure their safety. The DSHEA did not, however, require that the manufacturers of dietary supplements prove through testing that their products were safe or actually contributed to the health and well-being of their consumers. Rather, the FDA had the burden of proof that the products were unsafe before they could bar their sale.⁴⁰

A Question of Safety—Claims and Counterclaims

Cell Tech marketing touted SBGA as “one of the planet’s most perfect foods,” with claims of increased energy and stamina, better moods, improved mental alertness, and better digestion. Claims of cured depression, allergies, and a plethora of other illnesses abounded. Reportedly, SBGA consumption produces a rush of energy.⁴¹

Andrew Weil, a nationally recognized expert on natural approaches to health, stated, “The fact that Super Blue Green Algae has a stimulant effect really bothers me. It seems quite possible that the product contains some sort of pharmacological agent, and it’s worrisome that nobody knows what it is.”⁴²

There have also been many reported incidents of illness caused by SBGA, particularly diarrhea, headaches, numbness, and heart palpitations.⁴³ Under law, dietary supplements can be marketed without any testing for safety. The burden of proof that a product is not safe rests with the FDA. Although the FDA has received complaints about SBGA, until proof that SBGA when taken as directed presents a risk to users, the FDA is powerless to act.⁴⁴

Cell Tech distributors were aware that these reactions could result from eating SBGA. Some noted in their pamphlets and newsletters that mild gastrointestinal illness is normal and a desirable side effect of SBGA’s detoxifying, or cleansing, action.⁴⁵

The National Council Against Health Fraud (NCAHF), however, noted that the concept of “detoxification” not only has no medical validity but can also be deadly. Lack of concern for side effects kept Herbalife salesman Bivian Lee from consulting a physician when he experienced a variety of adverse symptoms while learning to become a user of the products he intended to sell. He ignored the symptoms for more than two weeks before finally collapsing. The thirty-five-year-old retired professional football player died before he could see a doctor.⁴⁶

The reported illnesses associated with eating SBGA have been attributed by some to the quality of the water in Upper Klamath Lake.⁴⁷ Additional concerns have centered on the water in the canals south of the lake. Cell Tech harvests the algae by trapping it in screens placed in canals that run from the lake through farmlands and residential and industrial areas. Speculation arose that the canal waters contained additional contaminants due to the runoff.⁴⁸

Judith Mandelbaum-Schmid believed it was possible that the diarrhea, headaches, and other reported symptoms from algae eaters are caused by naturally occurring toxins in blue-green algae.⁴⁹ Evidence showed that exposure to sublethal levels of blue-green algae hepatotoxins are responsible for temporary stomach, intestinal, and liver problems in humans.⁵⁰

Toxicity

The blue-green algae sought by processing companies and harvested from the lake belong to the species *Aphanizomenon flos-aquae* (AFA). Although this species is harmless, research has shown that many species of blue-green algae are toxic or poisonous. In the 1950s and 1960s the National Research Council in Ottawa, Canada, isolated the poisons produced by two of the most toxic blue-green algae, *Anabaena flos-aquae* and *Microcystis aeruginosa*.⁵¹ The poison produced by the *A. flos-aquae*, a neurotoxin, was named anatoxin-a. The *M. aeruginosa* toxin, a hepatotoxin, was called microcystin.

These lethal toxins were defined by the symptoms they produced in animals. Neurotoxins interfere with the functioning of the nervous system and often cause death within minutes after the algae is eaten. Hepatotoxins damage the liver and can kill animals by causing blood to pool in the liver. Although the neurotoxins and hepatotoxins are the

most dangerous, they are not the only poisons produced by blue-green algae. Cytotoxins are also produced; these poisons can harm cells but do not kill multicellular organisms.

Scientists worried that the toxic varieties of algae that grew alongside the *A. flos-aquae* in Upper Klamath Lake might be contaminating SBGA.⁵² Although no human deaths had yet been traced to blue-green algae, concern existed about the modern fad of eating blue-green algae as a health food. Professor Wayne Carmichael pointed out that no guidelines required those marketing the algae to monitor their products for contamination by potentially poisonous strains. He noted that the safety of cyanobacteria is questionable because they are often gathered from the surface of an open body of water. Without using sophisticated biochemical tests, neither sellers nor buyers can distinguish toxic from nontoxic strains.⁵³

During the 1996 harvesting season a crisis occurred when the toxic species of blue-green algae, *M. aeruginosa*, was found. "Upper Klamath Lake contained so much *Microcystis aeruginosa* . . . that the Oregon Health Department advised people to avoid any contact with the lake water and keep their pets and livestock away from it."⁵⁴

Some people claimed that the *M. aeruginosa* is common only in Agency Lake, a smaller lake connected to the north end of Upper Klamath Lake, but the companies that harvested the algae directly from Upper Klamath Lake ceased operations until the *M. aeruginosa* had gone away. Cell Tech continued harvesting from the canals south of the lake, claiming that their processing and toxicity tests made it unnecessary for them to stop harvesting. Cell Tech's toxicity tests were performed by private laboratories and the results were not available to the public.⁵⁵

State Regulation

Prior to 1997, the Oregon Department of Agriculture, responsible for ensuring the safety and wholesomeness of food products, had made no attempt to regulate the growing algae processing industry. In May 1997, because of concerns over the increase in *M. aeruginosa* during the 1996 harvesting season, department officials announced plans to begin regulating the blue-green algae industry starting with a standard for the purity of algae products. The department notified al-

gae processing companies that it planned to require licensing and an inspection program for certain processing activities.⁵⁶

In notifying processors, the Oregon Department of Agriculture conceded that the toxins were a worldwide concern.⁵⁷ Based on drinking water standards used in Canada, England, and Australia, the Oregon Department of Agriculture proposed to establish a maximum of one part per million of microcystin, the toxic substance produced by *M. aeruginosa*.⁵⁸ The department also stated its intent to require algae processing companies to make provisions for water monitoring, sampling methods, laboratory procedures, and a plan for recalling products already on the market that did not meet the standards. The department also notified the companies to be prepared to discuss the labeling of blue-green algae products as it related to consumption by children.⁵⁹ Officials expressed a special concern about the consumption of algae products by children since they are more susceptible to damage from toxins.⁶⁰

Reported industry reaction to the Oregon Department of Agriculture's plans varied. International Aquaculture Technology, one of five companies that were cooperating in an aquaculture development council, supported the move. A separate association of three algae companies felt that the proposed plans were arbitrary. Another competitor thought the regulations were unnecessary. A consultant for Cell Tech stated that Cell Tech was willing to accept a reasonable amount of regulation, and that the company was trying to work with state officials to arrive at standards that would protect consumers and which would be achievable by the industry. It was also reported that industry officials were asking the state to ease the standard to as high as ten parts per million.⁶¹

In June 1997 officials of the Oregon Department of Agriculture and the Oregon Health Division met with about thirty representatives of the algae processing industry and representatives of the U.S. Food and Drug Administration to discuss the proposed standards. Media representatives were not allowed to observe the meeting. After the meeting Oregon Department of Agriculture officials commented, "We and the industry are working in a cooperative fashion to keep the industry in business and to protect the public. Once we've proposed a standard, there will be an open and public process. This is a complicated issue that is not easily reduced to sound bites."⁶²

Media representatives criticized allowing industry comment before public hearings as creating the perception that the standards would be influenced more by the industry's ability to comply with the standards than what was safest for the public. They also criticized the Oregon agriculture and health officials as being too slow to recognize the public interest in developing health standards for algae products.⁶³

The 1997 August Celebration

Thousands of Cell Tech distributors attended the 1997 "August Celebration" in Portland, Oregon. During the testimonials and ceremonies that took place at the celebration, this microbe was acclaimed as the answer to many of the world's health and nutritional problems.

However, Cell Tech was facing issues that could not be ignored—the foremost of which was the potential state regulation. The publicity resulting from the discussions surrounding the state regulation of the algae industry had focused public attention on the industry as a whole and fueled the ethical controversy surrounding its products. In addition, attention had been brought to bear on the children who were being fed algae as a dietary supplement. In light of these issues, Cell Tech faced many challenges in the coming years.