

EDEN BIOSCIENCE CORP
Form 10-K
March 26, 2004

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2003

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____.

Commission file no. 0-31499

Eden Bioscience Corporation

(Exact name of registrant as specified in its charter)

Washington
(State or other jurisdiction of
incorporation or organization)

91-1649604
(IRS Employer
Identification No.)

3830 Monte Villa Parkway, Suite 100
Bothell, Washington
(Address of principal executive offices)

98021-7266
(Zip code)

(425) 806-7300
(Registrant's telephone number, including area code)

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Securities registered pursuant to Section 12(b) of the Act: None

Securities registered pursuant to Section 12(g) of the Act:
Common stock, par value \$0.0025 per share
(Title of class)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No []

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. []

Indicate by check mark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Securities Exchange Act of 1934). Yes [] No [X]

The aggregate market value of the common stock held by non-affiliates of the registrant, based on the closing sale price on June 30, 2003 as reported on The Nasdaq National Market, was \$27,375,925.

The number of shares of the registrant's common stock outstanding as of March 19, 2004 was 24,361,990.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of Eden Bioscience Corporation's proxy statement for its 2004 Annual Meeting of Shareholders to be filed with the Commission pursuant to Regulation 14A not later than 120 days after December 31, 2003 are incorporated by reference in Part III of this Form 10-K.

EDEN BIOSCIENCE CORPORATION

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PART I

This Annual Report on Form 10-K and the documents incorporated herein by reference contain forward-looking statements. These statements relate to future events or our future financial performance. In some cases, you can identify forward-looking statements by terminology such as may, will, should, expect, plan, intend, anticipate, believe, estimate, predict, potential or continue, the negative of these terms, or similar terminology. These statements are only predictions. Actual events or results may differ materially. In evaluating these statements, you should specifically consider various factors, including the risks outlined in the Factors That May Affect Our Business, Future Operating Results and Financial Condition section included elsewhere in this report. These factors may cause our actual results to differ materially from any forward-looking statement. The cautionary statements made in this document should be read as being applicable to all forward-looking statements wherever they appear in this document. We undertake no obligation to publicly release any revisions to these forward-looking statements that may be made to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

Item 1. Business.

Overview

We are a plant health technology company focused on developing, manufacturing and marketing innovative products for agriculture using our natural protein-based harpin technology. We have a fundamentally new, patented and proprietary technology that we believe enhances plant health and improves overall crop production and quality. We believe our technology provides growers with valuable benefits by increasing crop yields, quality and shelf-life; by improving the plant's ability to suppress certain diseases and other environmental stresses; and by enhancing the uptake of nutrients.

Our proprietary technology is based on a new class of nontoxic, naturally occurring proteins called harpins. Harpin proteins trigger a plant's natural defense reaction and activate growth and stress-defense responses that enhance the plant's vigor and stamina and improve overall plant health. This process initiates a reinforcing cycle of plant responses that enhance plant health and subsequently enhance the plant's ability to respond to stresses and to grow. This beneficial, reinforcing cycle of plant health results in production benefits related to improved marketable yields, quality and shelf-life.

Our first product, Messenger®, received Environmental Protection Agency (EPA) approval in April 2000, and we began sales in August 2000. In January 2004, we introduced an improved EPA-approved formulation of Messenger trade named Messenger® STS. This formulation improves our initial formulation in three important areas: tolerance to chlorinated water, slower degradation in the application tank after mixing with water, and longer shelf-life in the product container after opening.

Beginning in 2004, Messenger STS will be sold in the United States while the original Messenger formulation will be sold primarily outside the United States until appropriate Messenger STS product registrations can be obtained in target countries. Messenger and Messenger STS are both water-soluble, granular powders that are topically applied either independently or in conjunction with traditional chemical pesticides. These products are not a substitute for products currently being used by growers. Once applied, Messenger and Messenger STS degrade rapidly and leave no detectable residue. Unlike traditional chemical pesticides, Messenger, Messenger STS and other products we are developing using harpin technology have no direct effect on the environment external to the plant but work through the plant's natural processes to produce agronomic benefits. Messenger and Messenger STS initiate natural plant reactions and do not alter the plant's DNA.

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Our near-term priorities are the commercialization of Messenger STS in the United States and Messenger in Spain for use on specifically targeted crops in designated regions. We are currently concentrating our efforts on high-value crops such as citrus, grapes, tomatoes, peppers, cucumbers, melons, strawberries, stone fruit,

tobacco and other horticultural and specialty crops from which we expect growers will derive the greatest economic benefit from the use of our products. In March 2003, we began limited marketing of Messenger to the home and garden market, focusing primarily on roses. We have taken the information we gained in 2003 and incorporated it into an expanded 2004 marketing plan. In 2004, we intend to concentrate our home and garden efforts in the Pacific Northwest and the Northeastern regions of the United States. We also plan to expand our efforts with plant-specific interest groups such as the American Rose Society.

Our market research indicates that plant nutrition is another market closely associated with plant health. In January of 2004, we introduced Employ, our second product based on harpin technology. Employ is specifically designed for the crop nutrition market. Employ is a non-EPA regulated product designed to enhance nutrient uptake when mixed in the application tank with foliar nutrients. The research we conducted on nutrient uptake has also allowed us to develop a harpin technology-enhanced fertilizer for the home and garden market, trade named MightyPlant. We anticipate that it will be available for sale to the public in April 2004.

Our sales of Messenger to distributors and usage by growers have been significantly below our expectations since our inception. We believe that market research conducted in the spring and summer of 2003 revealed that enhancing our value proposition to growers could increase the amount of product used by growers. We implemented a sales promotion through our distributors in the fall of 2003 to test our research and the response it predicted and to select a new price level. We believe the results of our test market validated our research, demonstrated the potential of an enhanced value proposition in increasing grower usage, and led us to significantly reduce the per-ounce price of Messenger and Messenger STS for 2004 compared to the per-ounce price of Messenger in 2003.

We have incurred significant operating losses since inception, and we expect to incur additional net losses as we proceed with the commercialization of Messenger, Messenger STS, and Messenger for home and garden and with the introduction of Employ and MightyPlant. We also plan to devote considerable resources to research and development activities to develop and commercialize our next generation of harpin protein and other new products based on our harpin technology. We believe that the additional products and technologies currently under development have the potential to enhance performance in specific markets, reduce our production costs and provide the combination of performance and economics necessary to target large-acreage crops that have lower per-acre values than our current focus crops.

We were incorporated in the state of Washington in 1994.

Industry Overview

In order to remain competitive in the global agricultural marketplace, growers are consistently challenged to increase productivity by improving crop yield and quality. Over the last several decades, growers have relied on the development of more effective farming practices, improved plant protection and yield enhancement methods and products to limit agricultural crop losses and to increase the yield and quality of their crops. In recent years, however, the rate at which growers have been able to further improve crop productivity has declined as improved farming practices have become more fully implemented, as land suitable for conversion to farming has become scarcer and as concerns about the environmental impact of farming practices have increased. Moreover, growers today face increasing scarcity of available resources, such as labor, water and land, and increasing restrictions on the use of traditional chemical pesticides. At the same time, the global demand for food and improved food quality continues to increase with population growth and generally rising standards of living.

In today's competitive agricultural environment, growers must maximize crop productivity by enhancing yield and minimizing crop losses. In addition to basic agronomic practices such as crop rotation, cultivation or variety selection, growers generally have two alternatives to limit economic losses and increase yields. The first approach is to use traditional chemical pesticides, and the second is to grow genetically modified plants that are engineered to resist certain insects or to tolerate applications of nonselective herbicides. Each of these

approaches has come under criticism from a variety of sources worldwide including environmental groups, government regulators, consumers and labor advocacy groups.

Traditional Chemical Pesticides

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Growers use traditional chemical pesticides to kill weeds, insects, microorganisms and other pests. Although generally effective in killing targeted pests, traditional pesticides are targeted at the environment external to the plant and may have serious adverse side effects. Many of these chemicals are suspected carcinogens and many are acutely toxic. Pesticide applicators and field workers face risks from direct exposure to toxic chemical pesticides and are required to obtain specialized training and follow EPA-approved label instructions. In addition, use of chemical pesticides often suppresses beneficial insects and microorganisms that otherwise provide a degree of natural protection. Over time, many pathogens and pests develop resistance to chemical pesticides.

Over the past 50 years, increased use of pesticides, with their potential risks and problems, has heightened public awareness and concern over their environmental and health hazards. As a result, the U.S. government and various state and foreign governments have imposed increasingly stringent regulations on the manufacture and use of chemical pesticides.

Regulatory and public pressure is forcing manufacturers to remove many traditional chemical pesticides from the market. Over the last 15 years, numerous pesticide products have been removed from the marketplace or have been severely restricted in their allowable uses. Currently, many widely used pesticides are subject to extensive and costly re-registration requirements mandated by changes in federal pesticide laws. As a result of these regulatory constraints as well as other economic pressures, growers have increasingly sought new technologies to protect crops and maintain profit margins.

Genetically Modified Plants

Scientific advances, coupled with the health and environmental problems associated with conventional chemical pesticides, led to the introduction of genetically modified plants in the early 1990s. These products can provide a variety of pesticidal and other benefits. Genetically modified plants have been developed to produce herbicide-tolerant, insect-resistant or virus-resistant crops. In addition, improved output traits, including those designed to create higher-quality animal feed, have been introduced into the market.

While genetically modified plants have been widely used, environmental groups, some scientists and consumers, especially in Europe, have raised questions regarding the potential adverse side effects, long-term risks and uncertainties associated with genetically modified plants. Some countries, primarily in the European Union, have established restrictions on the planting of certain genetically modified seeds or on the importation of grain produced from these seeds. Moreover, some countries, including Japan and certain members of the European Union, have imposed labeling requirements on genetically modified food products, and federal legislation requiring such labeling has been proposed in the United States. Several food-related companies have indicated that they will not use genetically modified crops in their products.

The Eden Bioscience Solution and Advantages

Utilizing our harpin and harpin-related technology, we have developed and are continuing to develop products that have no direct impact on the environment external to the plant but rather activate a plant's natural growth and defense systems without altering the plant's DNA. We believe our harpin and harpin-related technology provide the following valuable benefits to growers:

Simultaneous activation of natural plant systems to:

Improve plant health, growth, crop yield and quality. We have demonstrated an ability to improve plant growth as evidenced by increases in one or more of the following: biomass, photosynthesis, nutrient uptake and root development. We believe the improved plant growth observed in our

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harpin technology field trials leads to improved plant health and generally increased yields and quality over current agronomic practices.

Resist and/or suppress a broad array of viral, fungal and bacterial diseases. Our technology has demonstrated an ability to enhance overall plant health and to activate a plant's natural defense systems, both of which help to assist in defense against a broad spectrum of diseases when used as part of an Integrated Pest Management program.

Effectiveness across a wide array of crops. Our technology has proven effective in activating natural plant growth and defense systems in over 40 crops, including high-value crops such as citrus, grapes, tomatoes, peppers, cucumbers, melons, stone fruits, tobacco and strawberries; traditional field crops such as cotton, wheat, rice and corn; and ornamental crops such as roses.

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Reduced risk of environmental damage and improved worker safety. Based on independent toxicology studies, in-house laboratory tests and extensive field testing, we believe harpin protein has little, if any, impact on the environment. As a result, we believe harpin-based products have significant advantages over traditional chemical pesticides in terms of worker safety and environmental consequences.

Reduced likelihood of pest resistance. Over time, the direct killing function associated with chemical pesticides sometimes results in pest and pathogen resistance. Because the mode of action of our technology has no direct effect on the environment and works through the initiation of the plant's own natural responses, we believe it is less likely that pests and pathogens will develop resistance to our products.

Our Business Strategy

Our objective is to utilize our proprietary technology to develop, manufacture and market products that enhance crop yield and quality and improve plant health and protection. We plan to achieve this goal by implementing the following key strategies:

Commercialize Messenger STS, Messenger for home and garden, Employ and MightyPlant in the United States and Messenger in Spain and other countries. We are conducting marketing activities designed to promote the distribution and sale of our products. We plan to commercialize present products and any future products we may develop by beginning sales in the United States and expanding to foreign countries over time as we obtain regulatory approvals and establish business relationships.

Promote the benefits of our harpin technology-based products and of harpin-related technology. We intend to use our existing and growing body of field trial results to promote the use of our existing commercial products and the benefits of our proprietary technology. We plan to build market awareness through a wide range of distributor and grower education activities, field demonstration programs, materials and events, including conference and trade show appearances and the dissemination of sales literature and promotional materials.

Continue to develop new products that utilize our harpin technology, activate natural plant growth and defense systems and enhance overall plant health. We plan to continue to focus considerable resources on research and development activities to develop and commercialize new products based on our harpin and harpin-related technology platform. These efforts have yielded new formulations and new harpin proteins. We also plan to evaluate the potential of plants modified with harpin protein for commercial application.

Control and protect our technology. We own or have obtained exclusive worldwide rights to patents and patent applications that cover harpin proteins, genes encoding harpins and their use and other related technologies. We plan to aggressively protect our control of these technologies by enforcing our current patents and filing additional patent applications as warranted.

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Maintain control over product manufacturing. In order to control the quality and supply of our current products and any future products we may develop and to help maintain our proprietary position, we intend to retain control over the manufacturing of these products. We have established comprehensive and detailed quality control and assurance systems to ensure that we sell the highest quality products. We will use independent manufacturing arrangements only when we can satisfy ourselves that we can maintain our quality standards.

Core Technology Platform

The active ingredient in Messenger and Messenger STS is one of a class of environmentally safe, nontoxic proteins called harpins, which were discovered by Dr. Zhongmin Wei, our Vice President of Research and Chief Scientific Officer, and his colleagues while at Cornell University. *Science* magazine published the related study as its cover story in July 1992. The USDA also recognized the discovery, describing it as a scientific breakthrough in understanding how plants respond to pathogens.

Plants have powerful natural defense mechanisms. Plants generally resist pathogens, or restrict their proliferation, by causing localized necrosis, or death of tissues, to a small zone surrounding the site of infection. This resistance by the plant is called the hypersensitive response. In addition to the localized hypersensitive response, plants respond to infection by activating defenses in parts of the plant that were not infected by the original pathogen, increasing resistance to further or secondary infections by the same and other pathogens. The activation and maintenance of defense systems in the uninfected regions of a plant are referred to as systemic acquired resistance. Systemic acquired resistance confers long-lasting systemic disease resistance against a broad spectrum of pathogens.

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Researchers have studied these natural defense mechanisms for over 30 years seeking to understand how plants recognize an infection and what activates their defense systems. Dr. Wei and his colleagues were able to isolate and characterize the harpin protein, a previously undescribed class of proteins associated with activating these responses. They established that when certain bacterial infections occur, the bacteria secrete a harpin protein, which, in turn, signals the plant to generate a defense against the infection. Later they discovered that direct topical application of trace amounts of harpin to the surface of the plant leaf or seed signals the plant to activate multiple stress-defense and growth-enhancing responses without visible hypersensitive response.

How Harpin Works

The harpin protein serves to initiate several key plant reactions that generally result in improved plant health. Once harpin protein is applied to a plant and binds to a plant receptor, production of hydrogen peroxide, an important mechanism of plant defense, is induced in plant cells and a series of ion exchanges are stimulated in the cell membrane. Then, a series of signal transductions occur that result in the following benefits:

Improved plant health. Harpin is able to induce the expression of many plant growth and stress-defense related genes, such as systemic acquired resistance, stress resistance, cell elongation, ion channels, cell wall development, photosynthesis proteins, flowering initiation and fruit size. Activation of plant growth pathways can result in increased photosynthesis, nutrient uptake, biomass and root development. Activation of stress-defense pathways enhances the plant's natural abilities to suppress diseases and overcome other environmental stresses.

Improved marketable yield, quality, and shelf-life. Harpin initiates a reinforcing cycle of plant responses that enhance plant health and subsequently enhance the plant's ability to respond to stresses and to grow. This beneficial, reinforcing cycle of plant health results in production benefits related to improved marketable yields, quality and shelf-life.

The first harpin was isolated from *Erwinia amylovora*, a pathogenic bacterium that causes fire blight in apple, pear and other rosaceous plants. Since then, Eden Bioscience and Cornell University, as well as other

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research institutions, have isolated several harpin or harpin-like proteins from other major groups of plant pathogenic bacteria. We believe we own or have licensed the exclusive right to use the harpin family of proteins.

Our Products

Utilizing our proprietary harpin and harpin-related technology, we have developed three EPA regulated products, Messenger, Messenger for home and garden, and Messenger STS (referred to collectively as Messenger Products), that activate natural plant growth and stress-defense systems. These products activate plant responses but have no direct effect outside of the plant or on pests or pathogens. All effects are a result of activating the plant's natural mechanisms. We have also developed two products that are regulated under state nutritional laws, Employ and MightyPlant. These products are designed to enhance plant health through direct nutritional pathways. Messenger Products are water-soluble, granular powders that are topically applied either independently or in conjunction with certain traditional agricultural chemicals. Once applied, these products degrade rapidly and leave no detectable residue. These products provide all the advantages of our core technology, including:

simultaneous activation of natural plant systems to improve plant health, leading to improved marketable yield, quality, and shelf-life;

effectiveness across a wide array of crops;

reduced risk of environmental damage;

increased worker safety; and

reduced likelihood of pest resistance.

In addition to these key advantages of our proprietary technology, Messenger Products provide the following additional benefits:

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Low dosage and quick activation of plant systems. Generally, only two to four grams of harpin protein, the active ingredient in Messenger Products, are required to treat one acre of crops. Upon application, harpin proteins quickly initiate the activation of the plant's growth and stress-defense systems, with full activation occurring within three to five days. The quick response to harpin protein reduces the need for re-application when rainfall occurs shortly after application.

Simple application. Messenger Products can be applied using standard equipment and a variety of simple application methods, such as direct foliar sprays, seed treatments and soil drenches. For foliar spray applications, Messenger Products are mixed with water, either alone or in combination with certain other plant treatments, and applied using conventional spray equipment. In contrast to many traditional pesticides, which generally require that each individual plant leaf be sprayed, it is not necessary to spray the entire plant for harpin proteins to be effective.

Extended effect. In certain crops, such as corn, wheat and rice, we believe only one application of Messenger and Messenger STS per season is necessary. For other crops, such as fresh vegetables and ornamentals, repeat applications have been shown to enhance the growth and stress-defense benefits.

Reduced use restrictions and ease of disposal. Many chemical pesticides have restrictions that prohibit farm workers from re-entering treated fields or greenhouses for periods of 24 to 48 hours, which may cause significant delays in grower activities. Messenger Products, on the other hand, qualify for the EPA's minimum restricted entry interval of four hours. Similarly, many chemical pesticides are subject to restrictions that impose minimum time periods, ranging from a few days to several weeks, between the product's last application and the time of harvest. Because Messenger Products are virtually nontoxic and leave no detectable residues on treated crops, there is no pre-harvest interval. In addition, in contrast to most traditional chemical pesticides, personal protective equipment, such as respirators, rubber gloves, boots and complete suits of protective outerwear, is generally not required for workers applying Messenger Products, although approved Messenger Product labels in some

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foreign countries may recommend the use of additional protective clothing and gloves. Unlike products containing toxic chemicals, Messenger Products' packaging materials can be disposed of in traditional municipal or county waste collection systems, although some foreign countries may require specific disposal methods.

Messenger Products Performance in Field Trials

We conduct both small scientifically oriented field trials and large demonstration field trials to test the efficacy and performance of our products, to educate growers and their advisors regarding the benefits and use of these products and to generate data to enable us to improve application rates and timing. In addition, we conduct field trials in connection with our research and development of new products. Field trials are conducted with major growers, universities and consultants. Generally, we pay these independent third parties to execute, evaluate and report on our trials pursuant to specific protocols agreed to by such parties. Compliance with such protocols is monitored by our field development scientists.

Since 1996, we have completed in excess of 1,000 field trials on over 40 crops in the United States, Spain and other European countries, the People's Republic of China, Mexico, Africa, the Middle East and other countries and regions of the world. The majority of trials were conducted on citrus, cotton, cucumber, peppers, strawberries, tobacco, tomatoes, grapes and corn. Our field trials generally demonstrated that Messenger Products deliver one or more of the targeted benefits of increased marketable yield, enhanced quality and extended shelf-life. Employ and MightyPlant have been tested for enhancing nutrient uptake in the agricultural crop market and the home and garden market, respectively.

Field trials are subject to numerous environmental and human circumstances beyond our control and results can vary significantly. Not all the trials we have conducted have shown commercially significant results. As resources allow, we plan to continue to research the crops that may prove to be unresponsive to Messenger Products as we learn more about agronomic growing practices and plant biochemistry through our research programs.

Messenger Products Safety

Independent toxicology studies, in-house laboratory tests and our extensive field testing experience demonstrate that Messenger Products are virtually nontoxic to humans and the environment. The following is a summary of the human health and environmental safety attributes of Messenger Products:

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Negligible human dietary and environmental exposure. There is virtually no human dietary or environmental exposure to Messenger Products resulting from application of the products. Product residues on treated crops are rapidly degraded by sunlight, rain and microorganisms and are undetectable within three to ten days following application, even when applied at rates far above our recommended application rates.

Safe for animals. The EPA requires that toxicology studies be conducted to evaluate the impact of products on selected animals. The EPA-required mammalian toxicology testing placed Messenger Products in the EPA's Toxicity Category IV, a designation reserved for materials with the lowest hazard potential. Further, only at dose levels hundreds of times higher than would typically be present as a result of recommended field applications is there any evidence of toxicity to fish or other aquatic organisms. Unlike many plant protection and yield enhancement products, Messenger Products require no label warnings or special use restrictions to protect animals.

Nontoxic to plants. Messenger Products have never been observed to cause phytotoxicity or any other adverse effects in plants during the course of hundreds of field trials conducted on a variety of crops under a wide range of environmental conditions. Also, we have not observed any adverse effects attributable to Messenger Products in numerous controlled laboratory studies to evaluate their effects on seedling germination and emergence.

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Safe for use in sensitive habitats. The EPA has expressed concern about the use of crop protection products in or around highly sensitive habitats such as estuaries and areas inhabited by threatened or endangered plants or animals. Because Messenger Products exhibit such a high degree of safety to plants and non-target organisms, we believe they are ideal candidates for use within and adjacent to environmentally sensitive areas and the Messenger Products labels bear no restrictions or precautions regarding such use.

Sales, Marketing and Distribution

Our marketing activities are designed to promote and demonstrate the benefits of our products to growers, distributors and other interested parties. We market and sell our products as plant health regulators to be used in addition to growers' integrated crop production programs.

In the commercial agriculture market, our commercialization efforts are focused on high-value crops, such as citrus, grapes, tomatoes, peppers, stone fruits, tobacco, cucumbers, melons, strawberries and other horticultural and specialty crops from which we expect growers will derive the greatest benefit from Messenger and Messenger STS, both in terms of their relative cost compared to the value of the crops treated and the value of the expected increases in marketable yields, quality, and shelf-life. These crops were chosen based on consistency of Messenger and Messenger STS performance, geographic concentration, grower concentration and our ability to communicate directly with growers. In addition, we are focusing on leading commercial growers who have significant purchasing power and are generally considered early adopters of new technologies. We are working with these growers and their consultants in field demonstrations, enabling them to become familiar with our products and to experience their benefits firsthand.

Our experience indicates that it is important for our representatives to follow-up with growers so that benefits of using Messenger and Messenger STS are fully understood by growers. We believe that success in growers' adoption of our products is dependent on educating growers and gaining on-farm validation of their benefits. This process requires an intensive on-farm effort lead by us and supported by the trade channel and other interested parties, such as independent grower advisors. We maintain a team of sales specialists to educate growers and distributors on the use and benefits of Messenger, Messenger STS, and Employ. These specialists possess a high level of technical expertise and knowledge regarding our products and harpin-related technology, as well as competing plant protection and yield enhancement products and techniques. This team maintains close relationships with growers and distributors through the growing seasons to collect product performance information and to position our products for expanded use in the following seasons. Employ is designed to enhance nutrient uptake in commercial agriculture. It will be an incremental input in a well-established market that is extensively serviced by our current distributors.

We conduct a number of marketing and awareness programs to support the sale and distribution of Messenger, Messenger STS, and Employ, including programs that promote the initial usage of the product and programs for repeat users to expand their usage. We use integrated marketing campaigns in our targeted crops and regions aimed at increasing brand awareness among large growers. These include targeted direct mail promotions, publicity articles and trade show promotions. In addition, we have programs that are designed to educate distributors, major commercial growers and their production advisors about the benefits of Messenger, Messenger STS, and Employ. Our field development scientists conduct field trials with these influential groups to further evaluate product efficacy, timing of application, combination treatments incorporating other agricultural chemicals and use in integrated crop management programs.

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We also target crop specialists and university agricultural research personnel in an effort to increase industry awareness of our harpin and harpin-related technology and its potential benefits. We have sponsored field trials for these groups, who independently test Messenger and Messenger STS, report their results to us and make recommendations to growers on inclusion of these products in integrated crop management programs.

In the second quarter of 2003, it became apparent that we would not reach our sales targets. We initiated market research to determine what other actions were necessary for increasing our rate of growth. This

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research suggested that a new value proposition with Messenger would increase the rate of growth in grower usage. In September of 2003, we implemented a buy one, get one free promotion in cooperation with our distributors to observe the effects of a new pricing model. We then used what we learned from this test market in planning the introduction of our improved STS formulation of Messenger in January 2004. We believe the outcome of this program supported the hypothesis that growth in grower usage was achievable with a new value proposition. We have targeted the same grower price per-acre in 2004 that was available under our fall buy one, get one free promotion. This action requires adjusting the value of existing distributor inventories to make this new pricing available to growers immediately and will be accomplished by making additional products available to our distributors at no charge. We estimate that 550,000 ounces of product will be given to distributors in 2004 at no charge, which will have a negative impact on our sales to distributors.

We plan to continue employing established industry methods to distribute all of our products. Our independent distributors have developed positive working relationships with growers over many years and provide us with valuable marketing and sales assistance in the continuing introduction of our new technology. We have engaged several independent distributors in the distribution and sale of our products, ranging from large, nationwide distributors with multiple locations to local independent distributors with one location. We believe our distributors have the opportunity to achieve attractive profit margins by selling our products and, therefore, will have an incentive to promote and sell them and any other products we may develop. We may also offer volume discounts, extended payment terms or establish other programs designed to appeal to our distributors and growers. The following table presents quantities of Messenger we sold to our distributors prior to this year's introduction of Messenger STS and, based on information reported by distributors, estimated sales by distributors to growers and estimated quantities of Messenger in distributors' inventories at year end:

As of December 31,	Ounces of Messenger		
	Sold by Eden to Distributors	Estimated Sales By Distributors to Growers	Estimated Year- End Distributors Inventories
2000	453,000	66,000	387,000
2001	1,225,000	596,000	1,016,000
2002	535,000	684,000	867,000
2003	602,000	734,000	503,000

In February 2003, we negotiated with one of our distributors a compromise settlement whereby we paid \$250,000 to settle unpaid accrued sales allowances and an uncollected account receivable. As part of the settlement agreement and mutual release, we accepted approximately 232,000 ounces of Messenger from that distributor.

With the introduction of our improved formulation, Messenger STS, in January 2004, we began exchanging, at no cost to the distributors, existing Messenger inventory in distributors' possession with Messenger STS. This exchange process is voluntary and solely at each distributor's discretion. While we believe most distributors will choose to exchange Messenger for Messenger STS, certain growers may prefer to use Messenger instead of Messenger STS or will only change to Messenger STS after they have tested Messenger STS. Further, Messenger will continue to be sold in certain foreign countries. Costs of this exchange program are not expected to be significant.

Over time, we intend to continue to pursue selected international opportunities by establishing relationships with individuals or companies having experience in selected foreign markets, conducting additional international field trials, pursuing regulatory approval in international markets with concentrations of our targeted crops and establishing relationships with foreign distributors in an effort to capitalize on global opportunities. To date, our sale of Messenger outside the United States has not been significant. We believe international sales will increase in

2004 with our registration in Spain and the initiation of sales in China.

In March 2003, we began marketing Messenger for home and garden through retailers and over the Internet, concentrating primarily on roses. In the home and garden market, we are also concentrating on

leading authorities who test and advise gardeners regarding the use and expected results from new product introductions. In April 2004, we plan to begin test marketing MightyPlant, a harpin technology enhanced fertilizer. This will allow us to examine our participation in the home and garden nutritional market.

As of February 29, 2004, we had 12 technical sales representatives in the United States reporting to the Director of Sales and Marketing. We have two business development managers in Europe and a Business Manager and technical sales representative in the home & garden market. During the growing season, we also hire temporary employees to assist with sales and marketing and follow-up with growers.

Manufacturing

In 2001, we completed a significant expansion of our manufacturing facility and now have the capacity to manufacture approximately 25 million ounces of our EPA-regulated products annually. To help ensure the quality and supply of our products and to protect our proprietary technology, we intend to retain control over the manufacturing process. We have established comprehensive and detailed quality control and assurance systems designed to ensure that we sell the highest quality products. We currently conduct numerous quality control tests on each Messenger and Messenger STS production lot. We will use independent manufacturing arrangements only when we can satisfy ourselves that our strict quality standards will be maintained. When our manufacturing plant is operating, we depend on independent manufacturers for large-scale fermentation services and to perform certain other portions of our production process.

We have designed and developed a water-based fermentation process to manufacture Messenger, Messenger STS and other harpin-based products. First, we place the harpin gene into a benign form of common laboratory bacterium, *Escherichia coli*, which is frequently used in pharmaceutical production and is nonpathogenic, nutritionally deficient and cannot survive in normal environmental conditions. Once the harpin protein has been produced, the bacteria are destroyed and the harpin protein is extracted and dried. We do not create harmful intermediates in the production of Messenger and Messenger STS or other harpin-based products we are developing. Further, waste materials are biodegradable and are easily disposable. The raw materials used in the manufacture of our products are readily available from multiple sources. We do not currently depend on any single supplier for the raw materials necessary for the manufacture of Messenger and Messenger STS.

The Messenger inventory currently held by independent distributors, growers and us was manufactured in 2000, 2001 and 2002. Due to the age of some of this inventory, we conducted limited re-testing of Messenger samples produced in 2000 and 2001. Results of limited re-testing of 2000 production indicate that this material still meets our quality control standards. Results of limited re-testing of 2001 production indicates that a portion of this material may have degraded below our quality control standards and we have recorded inventory cost reductions and write-offs totaling \$47,000 in 2003 and \$193,000 in 2002. If our re-testing program indicates that additional material has degraded below our quality control standards, we may have to record additional inventory write-downs and may replace any such product held by distributors or growers.

Approximately 42,000 square feet of our Bothell, Washington facilities are dedicated to the manufacturing, packaging, warehousing and shipment of Messenger, Messenger STS, and Employ. The manufacturing portion of our facility is monitored and regulated by a number of different governmental agencies including local, state and federal authorities. We believe that we are in compliance with all regulatory requirements relating to our facilities.

Research and Development Programs

Our research and development efforts utilize protein and organic chemistry, analytical chemistry, recombinant technologies and traditional water-based fermentation techniques, among others. As of December 31, 2003, we employed 14 researchers and support staff in Bothell, Washington and other locations, four of whom hold doctoral degrees. These employees work in the following functional areas: seven researchers and support staff who perform research relating to new product and formulation development in Bothell, Washington; five field biology and development scientists and support staff in the U.S. and Europe

whose primary responsibility is to plan, coordinate and oversee Messenger and Messenger STS field trials; and two employee in the U.S. and Europe who handle regulatory affairs.

Through our extensive knowledge of harpin effects and harpin receptors and our research program, we have discovered the next generation of harpin protein for commercial development. We believe that we will continue to discover and develop new products that will improve yield enhancement and plant protection in the future. Our research and development efforts are focused on reducing product costs, increasing product efficacy, developing new markets and demonstrating biological activity. Our primary projects are:

Conducting Messenger and Messenger STS field trials. We are conducting field trials to further evaluate Messenger and Messenger STS's efficacy in certain crops and regions, provide additional product information to growers, support sales and marketing in focus crops and expand our knowledge base of current and potential new focus crops. We are also continuing to explore new markets and applications such as post-harvest benefits from pre-harvest applications of Messenger and Messenger STS and home and garden uses. Some of these trials are necessary to obtain and support registration of Messenger and Messenger STS in California and certain foreign countries.

Developing new formulations. We have developed a new formulation, Messenger STS, that offers tolerance to chlorinated water, slower degradation in the application tank after mixing with water and longer shelf-life in the product container after opening. We are developing newer formulations for the home and garden market and the next generation of harpin protein.

Identifying new harpin proteins. We have identified and are currently performing efficacy studies on harpin proteins that we have shown to be many times more potent than our current product and that may have effects on other classes of disease or induce additional growth pathways in plants. We have applied for an EPA Experimental Use Permit and exemption from tolerance for the next generation of harpin for the 2004 growing season. This will allow us to gain experience on a commercial scale before product introduction. We also applied in February 2004 for a full EPA registration on this new active ingredient.

In addition, we conduct limited research and development activities using harpin-related technology for the genetic modification of plants. However, we do not possess the seed technology necessary to commercialize genetically modified crops. As a result, these products could be brought to market only with the assistance of companies that possess this technology.

Continuing Cornell University Relationship

In May 1995, we entered into a license agreement with the Cornell Research Foundation whereby we acquired worldwide exclusive rights to Cornell University's technology relating to harpin proteins and related genes. The license agreement grants us exclusive rights to make, have made, use and sell any product or use claimed in the licensed patents and patent applications, or that incorporates the licensed biological materials. In consideration of these exclusive rights, we agreed to fund research and development activities at Cornell University, and we issued the Cornell Research Foundation 400,000 shares of our common stock. We further agreed to pay a royalty on net sales of licensed products and to make certain minimum annual royalty payments.

Currently, we own or have exclusive rights under the license agreement to 31 U.S. and foreign patents and 47 U.S. and foreign patent applications. The patents and patent applications include claims that protect Messenger and Messenger STS and, accordingly, our ability to market and sell both products depends on the license agreement. Future inventions may be added to the license agreement based on inventorship, our funding of the research at Cornell that produced the invention and the relationship of potential patent claims of the invention to the claims of the licensed patents or licensed patent applications.

The license agreement terminates on the expiration date of the last-to-expire licensed patent. Currently, the last-to-expire licensed patent will expire in February 2018. However, if additional patents are added to the license agreement in connection with the development of future products, the term of the license agreement

would be extended to the date of the last-to-expire of the additional patents. The Cornell Research Foundation may terminate the license agreement prior to the expiration of the term, but only if we are in substantial noncompliance with any of the material terms and conditions of the license agreement and we fail to remedy the noncompliance within six months after being notified in writing of the noncompliance.

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We are currently responsible for the management of patent prosecution and maintenance activities relating to the licensed patent applications and any patents issuing there-from. We are obligated to pay all expenses of this prosecution and maintenance, both in the United States and in the foreign jurisdictions that we designate for filing counterpart applications.

Patents and Proprietary Rights

We own or have exclusive rights to approximately 78 U.S. and foreign patents and patent applications, consisting of 31 U.S. and foreign issued patents and 47 patent applications pending in the U.S. and abroad. All of these patents and pending patent applications are either owned solely by Eden Bioscience or by Cornell Research Foundation or jointly owned by Eden Bioscience and Cornell Research Foundation. Protection of our proprietary rights is vital to our business. In addition to our policy of seeking patents on our inventions, we rely on trade secrets, know-how that is not patented and continuing technological innovation to develop and maintain our competitive position. In addition, we maintain a policy of acquiring licenses under selected patents or patent applications from third parties, and entering into confidential information and invention assignment agreements with our employees, consultants and other third parties.

Our Messenger Products are covered by the U.S. patents to which we have exclusive rights. These patents, which include claims for the harpin family of proteins generally, for various specific harpins and for the use of harpin proteins to impart disease or insect resistance or to enhance plant growth or improve yields, will expire between 2013 and 2018. We believe these patents preclude our competitors and other entities from making, using or selling harpin proteins and using harpin proteins to impart disease or insect resistance or to improve yields or enhance plant growth.

Our pending patent applications include claims to several specific harpin proteins, methods to apply harpin proteins to seeds, the insertion of the harpin genes into plants to impart disease resistance and the use of harpin proteins to prevent post-harvest disease in fruits and vegetables and desiccation in ornamental cuttings. In addition, we have filed for patent protection for imparting tolerance to environmental or chemical stress, segments of harpin proteins and their uses and harpin protein binding molecules, as well as the activation of specific plant genes and gene families by harpin proteins.

Patent law is still evolving relative to the scope and enforceability of claims in the fields in which we operate. Like many biotechnology companies, our patent protection is highly uncertain and involves complex legal and technical questions for which legal principles are not firmly established. Therefore, our patent applications may be rejected. Even if we are issued patents, they may be insufficient to protect the technology underlying our products.

Eden Bioscience® is a registered trademark licensed from Eden Foods. Messenger® and Messenger® STS are registered trademarks in the United States, the People's Republic of China, Mexico, the European Union and other key foreign countries. Applications to register those trademarks are pending in other key foreign jurisdictions. Applications to register Employ and MightyPlant are pending in the United States.

Government Regulation and Registration

Messenger Products are regulated by the U.S. EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and under the Federal Food, Drug, and Cosmetic Act (FFDCA). The EPA has determined that both products are biochemical pesticides, a subset of biopesticides. Compared to traditional chemical pesticides, biopesticides are generally subjected to significantly fewer data requirements to support registration under FIFRA.

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On April 19, 2000, the EPA granted a two-year conditional registration for the full commercial use of Messenger, contingent upon the submission of additional information. In April 2001, we submitted the results of several studies as required by our conditional registration. The EPA reviewed this information, determined that it fulfilled the conditions of registration and, in April 2002, converted Messenger's registration from conditional to non-expiring. Having met the conditions of registration and received a non-expiring EPA registration, we are now able to continue sales of Messenger and Messenger STS with no further obligation, at this time, to develop and submit additional data to the EPA to support registration.

The EPA also granted us an exemption from tolerance under the FFDCA, meaning that it was not necessary to establish a maximum level of harpin residue that may be present on food or animal feed. Now that Messenger and Messenger STS are registered by the EPA, the Food and Drug Administration is responsible for monitoring and enforcing Messenger and Messenger STS's exemptions from tolerance.

Although pesticides themselves are exempt from the Toxic Substances Control Act (TSCA), TSCA does regulate pesticide raw materials such as the bacteria we use to produce harpin protein. However, the EPA has established an exemption from TSCA regulation for the category of

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bacteria we use to produce harpin if it is used in a contained environment in a limited access facility. The bacteria we use and our facilities comply with these requirements and, therefore, we are exempt from any further requirements of this law.

We are required to obtain regulatory approval from certain state and foreign regulatory authorities before we market Messenger Products in those jurisdictions. In the United States, we are authorized to sell Messenger and Messenger STS in 48 states on virtually all crops for crop production and disease management. In California, we are authorized to sell Messenger and Messenger STS for use on citrus to increase overall production, and for use on citrus, strawberries, grapes and fruiting vegetables (tomato, pepper and eggplant) for disease management. The California approval for disease management in citrus, grapes, fruiting vegetables and strawberries is unconditional. Upon submitting data from several additional studies on strawberry during 2001-2003, California evaluated this information and converted its strawberry approval to unconditional in February 2004. The approval for use of Messenger and Messenger STS in California on citrus to increase overall production was granted in March 2003 and is conditioned on the requirement that we submit data from several additional studies at various timeframes, concluding in December 2005. We have not received approval for Messenger Products in Colorado.

Foreign jurisdictions have taken a variety of approaches in the review and approval of Messenger. For example, Messenger is exempt from regulation in Morocco, and in Germany Messenger is approved for use as a plant strengthener, which gives us the ability to sell Messenger throughout the country. We have also received authorization to sell Messenger, or are exempt from formal authorization requirements, in more than 24 additional foreign countries, including China, Spain, Finland, Egypt, United Arab Emirates, Oman, Mexico, Ecuador and six Central American countries. We are pursuing registrations in several additional foreign countries, including Turkey. Our registration in China is temporary and limited to the sale of Messenger for use on tomatoes, peppers, tobacco, cotton, rice, citrus and rapeseed. The temporary registration is subject to annual renewals up to five years from the initial registration date of September 29, 2001. We received product registration in Spain in February of 2004. There can be no assurance that review and registration processes of other foreign jurisdictions will result in approval of Messenger in those jurisdictions or that such approvals will be received on a timely basis or at a reasonable cost.

Messenger Products are subject to continuing review by the EPA, state and foreign jurisdictions and extensive regulatory requirements. The EPA or the applicable regulatory body in any of these jurisdictions could at any time revoke our registration or impose limitations on the use of Messenger Products upon receipt of newly discovered information, including an inability to comply with regulatory requirements or the occurrence of unanticipated problems with the product.

Our manufacturing operations are subject to regulation and periodic inspection by the EPA and other federal and state regulatory agencies.

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Competition

The crop protection and yield enhancement industry is highly competitive and is dominated by multinational chemical and pharmaceutical companies, including Syngenta AG, Monsanto Company, BASF AG, Bayer AG, E.I. DuPont de Nemours and Company and The Dow Chemical Company. All of these companies have substantially greater financial, technical, distribution and marketing resources than we do. Competition is based primarily on price and efficacy. In addition, attracting and retaining qualified personnel, developing production and marketing expertise, developing proprietary products or processes and obtaining regulatory approvals on a timely basis are essential to establishing a competitive market position.

Many of the large chemical pesticide companies are also developing products that they believe are less environmentally harmful than traditional chemical pesticides and that may directly compete with our current products or other products we may develop. Syngenta AG, a large multinational company, manufactures a product that is designed to induce disease-resistant systems in wheat and in other plants. Other small companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. Furthermore, academic institutions, government agencies and other public and private research organizations may also conduct research, seek patent protection and establish collaborative arrangements for discovery, research, development and marketing of products similar to ours.

We expect competition within the plant protection and yield enhancement industry to intensify as regulatory pressures on traditional chemical solutions increase. We believe this will occur as advances in biological crop protection and yield enhancement technologies become more widely known. We may be unable to compete successfully against our current competitors or new market entrants may develop products that compete directly with our products and are more effective, less expensive or more widely accepted than our products.

Employees

As of December 31, 2003, we employed 34 persons, 18 of whom were located at our corporate headquarters in Bothell, Washington and 16 of whom were located elsewhere. Of these employees, approximately 14 were engaged in research and development and related areas, three in

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manufacturing and facilities, 12 in sales and marketing and five in management and administration. Our employees are not covered by any collective bargaining agreements. We believe relations with our employees are good.

Eden Bioscience Website

Through our Internet website at www.edenbio.com, we provide free access to our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission. The following corporate governance materials are also available on the Company's website. A copy of the materials will be mailed to you upon request to Eden Bioscience Corporation, Investor Relations, 3830 Monte Villa Parkway, Suite 100, Bothell, WA 98021-7266.

Audit Committee, Compensation Committee, and Nominating and Corporate Governance Committee Charters;

Code of Conduct applicable to all directors, officers and employees of Eden Bioscience; and

Code of Ethics for our CEO and senior financial officers.

If we waive any material provision of our Code of Ethics for our CEO and senior financial officers or substantively change the code, we will disclose that fact on our website within five business days.

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Executive Officers and Directors

The following table sets forth certain information regarding our executive officers and directors as of March 15, 2004:

<u>Name</u>	<u>Age</u>	<u>Position</u>
Rhett R. Atkins	50	President, Chief Executive Officer and Director
Bradley S. Powell	43	Vice President of Finance, Chief Financial Officer and Secretary
Zhongmin Wei	47	Vice President of Research and Chief Scientific Officer
William T. Weyerhaeuser	60	