

White Paper on the Organic Industry,
Updated as of August, 2008

Genesis Seeds Ltd. of Rehovot, Israel, is pleased to provide you with an update of its January 2008 White Paper on the state of the organic food industry.

In 2006, organic fruit and vegetable sales were almost \$6.7 billion or over 1% of total food retail sales so this is an important food category. It also represents a significant opportunity for the specialty seed industry. We trust you will find the enclosed informative.

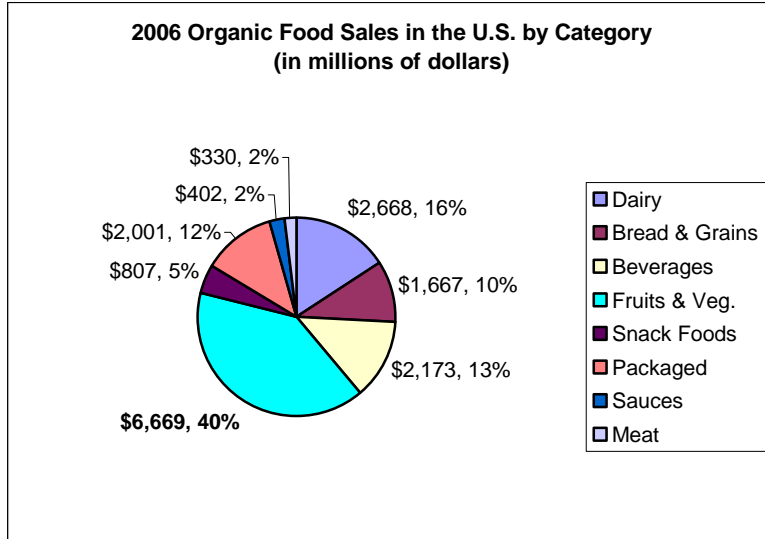


Genesis Seeds Ltd.

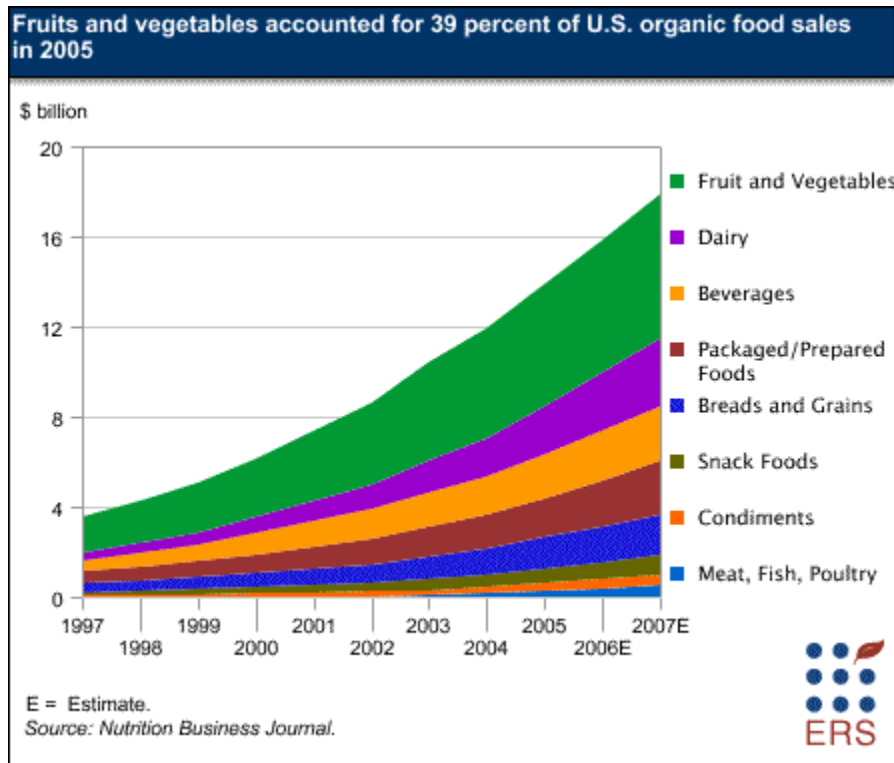
Good things grow naturally

Introduction

Organic food sales are one of the fastest growing categories of food retail sales in the U.S. The largest segment of organic food sales is fruits and vegetables (40%)¹.



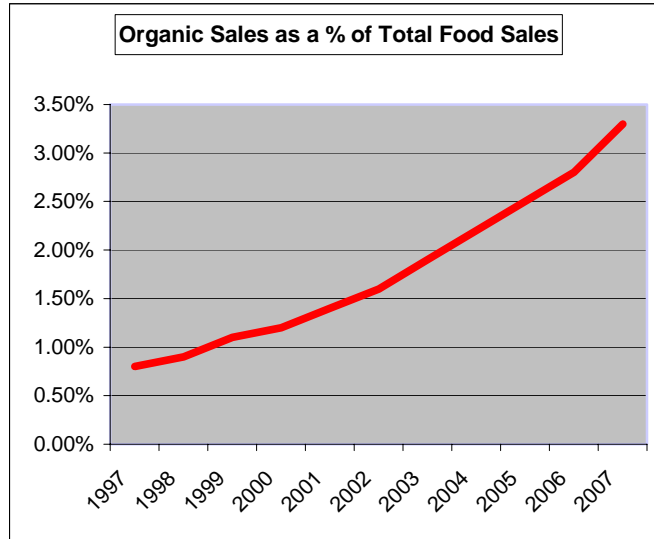
Produce is the “gateway” to organic consumption so has grown, as measured in dollars of retail sales, more rapidly than other categories over the past 10 years.



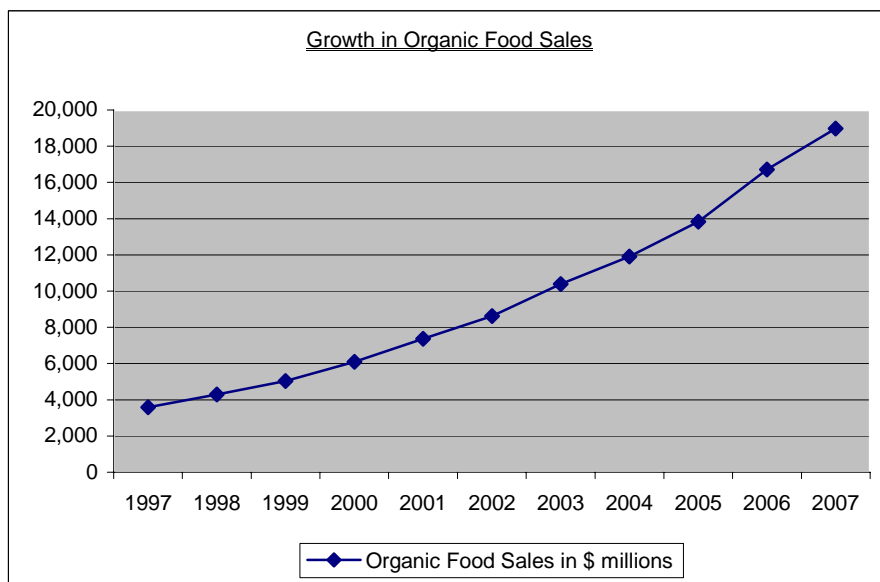
To meet the demand for fruits and vegetables, more commercial growers are turning to organic farming. As a result, **the demand for large quantities of high quality, open pollinated or hybrid, certified organic seed is growing and is offering an unprecedented opportunity to the specialty seed industry.**

The U.S. Market

Organic food sales in the U.S. have grown from 0.8% of total food sales in 1997 to 3.3% of total sales in 2007².



The organic industry grew by 19% in 2007 with food sales reaching almost \$19 billion. No other significant category of the food industry has shown a compound annual growth rate of over 18% for the past six years. By comparison, growth in total food sales for the six year period was about 4%.



Even in an economic downturn, organic food sales in the U.S. have grown with a 25% increase recorded from February 2007 to February 2008³. Sales are expected to continue to grow as consumers view natural and organic products as the key to good health and, as such, purchases are not considered discretionary but necessary⁴.

The Global Market

Globally, organic food sales grew at 13.6% in 2006 to \$36.7 billion and are projected to grow by 83% to \$67.1 billion in 2011⁵. The Asia-Pacific region, with a compound annual growth rate of more than 28%, is projected to be the fastest growing organic foods and beverages market.⁶ Europe is the second largest consumer of organic products and together the G7 countries account for over 80% of global organic sales⁷. Worldwide, as in the U.S., fruit and vegetable sales form the most lucrative segment of the market and account for 39.5% of the market's value⁸.

With the high growth in demand for organic products, production in North America and Europe has not been able to keep up and supply shortages are occurring. This has created an opportunity for other regions of the world to grow and then export organic produce. Approximately 120 countries grow certified organic products. Globally, nearly 31 million hectares (77 million acres) were certified according to organic standards in 2006⁹. The G7 countries only have about 12% of the world's acreage certified for organic growing so are dependent upon a combination of imports and high yielding seed to meet market demand. Organic farmland in Africa, Asia and Latin America has shown triple-digit growth since 2000 while other regions have experienced only double-digit growth¹⁰. In Latin America, organic producers are not only exporting produce but are also developing local markets for their produce. As other regions, such as Asia, follow suit, the global organic market will continue to grow. Thus, the market for organic inputs, such as seed, will continue to expand.

Several Factors Drive the Growth in Demand for Organic Foods in the U.S. Market

Demand for organic produce is driven by consumers who want products that address health, food safety and/or sustainability concerns. A European Union funded four year study found that organic fruit and vegetables contained as much as 40% more antioxidants and more beneficial minerals, such as iron and zinc, than ordinary produce (see appendix A). All organic produce must be grown according to strict organic protocols and must be certified organic. This certification requirement provides the consumer with the confidence that illegal chemicals and pesticides have not been used in the growing process so addressing a major food safety issue. As "carbon footprints" and sustainable use of the land become more of a concern to the consumer, certified organic and local produce grown in a sustainable manner can command a premium price.

Organic food has evolved into a "mainstream" item, available at a wide range of retailers, including Wal-Mart. This is driving growth as consumers no longer have to "seek out" organic products at specialty stores. "Retailers are using organic food to meet evolving consumer preferences and to attract new customers"¹¹. Away from home consumption

of organic foods is also growing as “organic foods are now seen as a clear product differentiator in all channels within the food industry.”¹² Visually, organic produce is comparable to, or better than, its conventional competitor. The overall organic price premium is similar to the price difference between a high end branded, packaged product and its generic counterpart. With the improved quality, organic food as a whole is undergoing a radical change. The industry is redefining and repositioning organic products beyond the “health-only” image of natural and fresh to being better and improved taste and flavor, and, where possible, a locally grown item. Organic products can be viewed now as both a life-style choice and a gourmet item that can be an indulgence purchase. Evidence of the latter approach can be seen in the rise of organic chocolates and gourmet cheeses.

Belief in the growth and staying power of the organic food industry can be seen in the acquisitions made by large food companies. Mars Company bought Seeds of Change, when it was an organic seed company and extended the brand into prepared foods. In 1999, General Mills bought Small Planet Foods, which owned the Cascadian Farms and Muir Glen brands of organic produce. More recently (in 2006), The Hershey Company bought Dagoba Organic Chocolate.

Growth is expected to continue as mainstream retailers find innovative ways to improve their profitability, and their reach, in this food category. Major retailers have established their own private label organic lines as a point of differentiation and as a way to improve margins. Safeway (the third largest grocery store operator in the U.S.) announced that it is striking partnerships to sell its 300-item “O Organics” line in Asia and South America¹³. This follows on Safeway’s deal with giant food distributor, Sysco Corporation, to sell the O Organics line into the food service industry. Publix, the supermarket chain based in Florida, has recently opened the first of several planned GreenWise supermarkets where the majority of the products sold will be organic and healthier¹⁴.

Organic Fruit and Vegetable Production in the U.S.

Organic fruit and vegetable production in the U.S. reflects this growth in demand for organic foods. On its Economic Research Service web site¹⁵, the U.S.D.A. states, “Organic farming has become one of the fastest growing segments of U.S. agriculture. U.S. producers are turning to certified organic farming systems as a potential way to lower input costs, decrease reliance on nonrenewable resources, capture high-value markets and premium prices, and boost farm income. Organic farming systems rely on ecologically based practices, such as cultural and biological pest management, and virtually exclude the use of synthetic chemicals in crop production and prohibit the use of antibiotics and hormones in livestock production. Many producers, manufacturers, distributors, and retailers specialize in growing, processing, and marketing an ever widening array of organic food and fiber products.” The latest U.S.D.A. crop acreage figures for the U.S., which cover 2005, show that almost 5% of the total acreage devoted to vegetables was certified organic and 2.5% of the total acreage for fruit was certified organic. The organic vegetable acreage had more than doubled from 1997 to 2005 while

the organic fruit acreage had almost doubled. Even with these increases, U.S. producers have been unable to keep up with demand.

A further sign of the growth of organic agriculture is the number of universities and colleges offering bachelor degrees or certifications in organic agriculture. Over 100 such programs exist across the U.S. For example, Colorado State, University of Florida, Michigan State and Washington State Universities all offer degree or significant certificate programs.

Organically Grown Seed is Inherently Superior Seed

Organically grown commercial fruit and vegetable seed is intended for organic growers. The demand for organically grown seed has been stimulated by the organic farming regulations in the United States, the European Union (EU) and other countries. These regulations require organically grown seed to grow organic crops, provided that an appropriate seed variety is available in organic form. However, conventional growers interested in superior seed are also finding that certified organic seed, which commands a premium price because of the higher cost of seed production, is worth the premium to them. **Because of the challenging conditions under which organic seed is produced, organic seed tends to be more disease resistant and stress tolerant than conventional seed. This makes it attractive to conventional growers. Genesis Seeds finds that over 50% of its sales of certified organic seed are to conventional growers.**

What It Takes to Be Organic and Why There Is a Significant Barrier to Entry into Organic Seed Production



In addition to the organic farming methods required for certification as an organically certified farm under the USDA National Organic Program, the land used to grow organic produce must have been free from chemical treatments for the prior three years. Until the three-year conversion period for the land is over, the produce may not be sold as “organic” even if the farmer has used no new chemical pesticides or fertilizer during the three years. Land conversion has been a significant barrier for conventional growers to convert to organic.

The Certification Process and Organic Seed

The USDA National Organic Program (NOP) regulations were implemented in October 2002. To guarantee that a farm is complying with all organic regulations under the USDA National Organic Program, the farm has third-party inspection and certification from a certification agency accredited by the USDA, referred to as an Accredited Certifying

Agent of the USDA, or “ACA.” One of the regulations that the ACA enforces is the requirement that the grower use organically grown seed to grow an organic crop.

The regulation, 7 CFR 205.204, requires organically grown seed except when “an equivalent organically produced variety is not commercially available.” In that event, conventional but untreated seed may be used instead of organically grown seed.

Since the implementation of the NOP, the supply of organically grown seed has increased, so that more farmers are able to find organically grown seeds that meet their needs. Organic farmers on a commercial scale need to use specific hybrid varieties, and some of these are now becoming commercially available in organic versions. Still in individual cases it is up to the ACA to decide whether an organic seed is “commercially available” so that the individual grower would be required to use it.

Under the NOP definition of “commercially available, at 7 CFR 205.2, if either the “form, quality or quantity” of the organic seed is not appropriate, then the organic seed would not be “commercially available” and the ACA may allow the grower to use conventional untreated seed instead. However, if an organic seed is available in the form, quality and quantity needed, then the ACA must require the grower to use the organic seed even if it is more expensive. Cost of an organic seed variety is not a factor that would make that organic seed “not commercially available.”

In 2006 Genesis joined with other organic seed companies to establish the first searchable electronic database of available organic seed varieties. The database is maintained by the Organic Materials Review Institute (OMRI) on its website at www.omri.org. ACAs and organic growers can consult this user-friendly database to find which organic seed varieties are available and which wholesale distributors and retailers can provide the seed. The NOP encourages ACAs in particular to consult the database before they rule on whether an organic seed is “commercially available.”

Organic Seed Making Progress in the EU

The EU has had a requirement since 1995 in its organic regulations to use organic seed. Since 2004 the EU has required each member state to establish a national organic seed database to identify available varieties. The OMRI seed database in the U.S. is modeled after the various EU national organic seed databases.

The EU’s Commission Regulation No. 1452/2003 of 14 August 2003 took effect on January 1, 2004. In addition to requiring national databases, the regulation has two other features to promote the use of organic seed by bringing greater transparency to the market: (1) Organic certifiers in the EU are required to submit an annual list of the “derogations” (exceptions) they have granted for the use of nonorganic seed. (2) Each EU member state may establish a list of crop species for which no derogations to use nonorganic seed would be allowed because there would be a sufficient number of varieties of organic seed available within that species.

Because these lists are published as Annexes to the text of Regulation No. 1452/2003, they are known as “National Annexes.” So far there are National Annexes for the Netherlands, France, Denmark, Switzerland and Austria. Taken together, the databases, the annual reports of derogations and the National Annexes have all had a positive effect on the growth of the organic seed market in the EU, where sales have been increasing at over 10 percent per year. This is leading to greater interest among conventional seed companies in serving the organic seed market.

Organic Seed and the 2008 Farm Bill

The 2008 Farm Bill was passed by Congress on June 18, 2008. The Bill devotes more than \$1.3 billion in funding for organic agriculture, fruit and vegetable programs, and local food networks. The Bill includes a new title dedicated to the needs of specialty crops and organic agriculture, including nutrition, research, pest management and trade promotion programs¹⁶. Within this new title are provisions that significantly increase funding specifically for organic agriculture, including a more than five-fold increase in funds for organic research and education when compared to the 2002 Farm Bill. The 2008 Bill provides \$22 million to help defray the costs that producers and handlers incur when seeking organic certification. Another \$5 million is allocated to expand data collection. This commitment of funds is further confirmation of the arrival of the organic food industry in the mainstream.

The opportunity for certified organic seed

It is clear that organic foods occupy a growing niche in the U.S. food industry. As large food companies enter the organic sector and expand their lines of organic foods, they will protect their brand names by insisting on quality, consistency of supply and strict adherence to organic standards by their suppliers. This creates an opportunity for more commercial growers and processors to switch to organic production, knowing that there will be an assured market for their products. In turn this creates new opportunities for certified organic seed.

Recognizing that there will be more demand for certified organic seed from commercial growers, Seeds of Change, the oldest and largest producer of 100% organic seed in the U.S.,¹⁷ has introduced a catalog for the professional grower. High Mowing Organic Seeds also caters to the commercial grower. In the Cincinnati Enquirer¹⁸, Tom Stearns, the C.E.O. of High Mowing Organic Seeds, was quoted in the as saying that “Of the land that commercial growers have planted for organic vegetables, only 1% is planted using organic seeds. Organic acreage is growing at 20% per year. That means it’s a 99% unfulfilled market growing at 20% per year. That’s a serious opportunity”.

The Role of Genesis Seeds Ltd. in Introducing Organically Grown Seed World-Wide

Genesis Seeds Ltd., founded in 1993, has pioneered the development of the commercial organic seed industry worldwide. Genesis produces high quality hybrid, open pollinated and heirloom certified organic vegetable, flower and herb seed for the commercial

grower. The company's January 2008 catalog lists 318 certified organic varieties of seed, of which 29 are hybrids. The catalog is at its web site, www.Genesisseeds.com. The company is based in Israel, where it has two research stations and a network of growers skilled in organic production. Genesis sells its seed wholesale and is willing to enter into research partnerships to provide exclusive certified organic seed to other seed companies.

For further information on the capabilities and product offerings of Genesis Seeds, please contact:

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¹ From the Organic Trade Association's 2007 Manufacturer Survey

² Flexnews: Food Industry News, July 15 2007

³ As (20) above

⁴ Based on article on Toledoblade.com, July 16 2008

⁵ Datamonitor, Organic Food: Global Industry Guide, August 2, 2007

⁶ Global Industry Analysts, Inc. July 23, 2007

⁷ Organic Monitor, November 15, 2006

⁸ As (5) above

⁹ The World of Organic Agriculture, Statistics & Emerging Trends 2006, International Federation of Organic Agriculture Movements (IFOAM)

¹⁰ As (7) above

¹¹ From the Organic Trade Association's 2007 Manufacturer Survey

¹² From the Organic Trade Association's 2007 Manufacturer Survey

¹³ From MarketWatch, Dec. 13, 2007

¹⁴ Businessweek.com, Sept. 26, 2007

¹⁵ Accessed December 27, 2007

¹⁶ From "Environment News Service" accessed July, 14, 2008

¹⁷ From the company's web site, viewed Dec. 28, 2007

¹⁸ August 20, 2007

APPENDIX A

January 2008 | www.vegetablegrowersnews.com

Study suggests organic food more healthful than non-organic

Preliminary findings from a four-year European Union (EU) study indicate that some organic foods are more nutritional than their non-organic counterparts, according to the Organic Trade Association (OTA).

"This study may be the breakthrough that helps prove what many in the organic sector believe to be true about food grown using organic practices," said Caren Wilcox, OTA's executive director.

The findings were announced by professor Carlo Leifert of the Tesco Centre for Organic Agriculture, based at Newcastle University in the United Kingdom.

Preliminary results from this study, part of the EU-funded Quality Low Input Food (QLIF) Project, show organic fruit and vegetables have up to 40 percent more antioxidants than non-organically grown produce, while organic milk contains 60 percent to 80 percent

produced milk in the summer, and 50 percent to 60 percent higher levels in the winter. Organic milk was found to contain higher levels of vitamin E.

The research team led by Leifert has been raising fruits, vegetables and cows organically and non-organically on a 725-acre farm near Newcastle University. The research is scheduled to run for an additional year.

Leifert said such benefits suggest that eating organic food would be equivalent to eating an extra portion of fruit and vegetables a day.

The QLIF Project, set up in March 2004, is funded with a grant of \$25.8 million from the European Union. The research program involves 31 research centers, companies and universities in Europe and elsewhere. To read more about QLIF, visit www.qlif.org/.

OTA is the membership-based business association for organic agriculture

A List of Useful Sources of Additional Information on the Organic Industry

- A. Organic Trade Association at www.ota.com
- B. IFOAM (International Federation of Organic Agriculture Movements) at www.ifoam.org
- C. The Rodale Institute at www.rodaleinstitute.org
- D. USDA's Economic Research Service section on Organic Agriculture at www.ers.usda.gov
- E. OMRI (Organic Materials Review Institute) at www.omri.org
- F. The Organic Center at www.organic-center.org
- G. Organic Farming Research Foundation www.ofrf.org
- H. SeedQuest's Organic section at www.seedquest.com/organics
- I. Organic Monitor at www.organicmonitor.com