The Past, Present and Future of Food

John Mackey, CEO
Whole Foods Market, Inc.

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Past, Present, & Future of Food

Six different Food Production Eras:
- Hunting/Gathering
- Horticultural
- Pastoral
- Pre-Industrial Agricultural
- Industrial
- Ecological
Hunting Gathering Era

Exploitation and consumption of a wide variety of wild plant and animal foods obtained by hunting, trapping, fishing, & gathering.

- Food calories from hunting/trapping (20%) and gathering (80%) nuts, seeds, fruits
- Tribal bands of < 40; lifespan of 33 years

Approximately 400,000 yrs b.p. to present

Benefits:
- Lower environmental impact
- Wide range, full utilization of whole foods
- Low disease rates

Problems necessitating change

- Dramatic climate and resources change starting about 20,000 yrs b.p.
  - More temperate climates in northern hemisphere—global warming
  - Extinction of many large mammal species
- Population pressures in resource-rich environments
Horticultural Era

Horticultural System

Systematic small scale planting and harvesting of seed/tuber based crops in fixed locations

- Domestication of major grain crops: rice, barley, wheat, maize
- Long period of experimentation with various plants, including textiles
- Early domestication of animals

- Approximately 12,000 b.p. to present

- Still exists today in the form of gardening—most of the food sold in local farmers’ markets are the result of horticulture
Pastoral Systems

Pastoral System
Domestication of horses, cows, sheep, & goats allowed the exploitation of seasonally available grazing lands; focus upon production and utilization of food animal products

Approximately 8,000 yrs b.p. to present

Benefits:
- Use of marginal agricultural land
- Limited human population pressures
- Greatly facilitated trade & commerce

Problems:
- Often warlike
- Overuse of “commons”
Pre-Industrial Agricultural Era

Agrarian System
- Focused on improving and growing more selected food crops, with a greater reliance on high energy grains and development of increasingly sophisticated storage and preparation methods.
- Food calories from grains: animal food supplements

Approximate time 5,000 yrs b.p. to present

Benefits
- Better tools = efficiencies
- Surplus food production permits the growth of cities, arts, sciences, religions, & warfare to higher levels of complexity
- Large-scale exchange of agricultural products

Problems
- European/Asian Population Growth
- Continuing expansion of agricultural land at the expense of wilderness
- Most property in control of power elite
- People are property--serfs & slaves
Transition to Industrial Era

Industrial Revolution:

- Reason and Science begin to pre-empt Faith and Religion in practical realms
- Adam Smith and the use of Economic models develop with machine metaphors
- Machinery for transportation, agriculture, industry and manufacturing
- New energy sources used to replace human & draft animal labor
Industrial Agriculture Era

Industrial Agriculture focuses on efficiencies of inputs and outputs, includes mechanistic thinking, and has an end goal of low cost food products.

- Food calories from processed foods (sugar, refined grains, & refined fats) & increasing quantities of animal products in diet

Approximately 250 yrs b.p. to present

- Rational world view
  - Quest for efficiency
  - Reliance on Technology
- Desire to control/shape natural forms
- Market economy
  - Increased productivity & lower prices
  - Trade expands exponentially
- Urbanization increases
Industrial Agriculture Era

- Mechanization & chemicals promote vast monocultures
- Post WWII increase in usage of synthetic pesticides, fertilizers
  - Resistant populations of agricultural pests
  - Massive resource inputs for extraordinary yields
- The Green Revolution
  - Hybrid rice, intensive resource inputs double yields
- Rachel Carson’s *Silent Spring*, 1962
  - DDT banned but in general government and industrial policies slow to change
- Growth of Agri-Business
  - Farm acreage consolidation
  - Con-Agra, Cargill, ADM, Smithfield, Monsanto
- GMO Research & Development
  - 99% of GM crops sown create resistance to pests or withstand herbicide use—used for industrial model
  - Surveys indicate 92% of Americans support mandatory labeling for GMOs
  - The EU, Russia, China, Japan, Korea, Thailand, Australia, and New Zealand all require mandatory labeling—why doesn’t the USA?
Industrial Agriculture Era

Benefits:

- Reliability of food supply
  - Uniformity
  - Sanitation

- Efficiencies in production
  - Yields increase dramatically
  - Fewer producers needed to grow food
  - In 1950, one farmer fed 25 people; in 2000 one farmer fed 129 people
  - Money spent on food in USA drops below 8% of average disposable income

- Social progress
  - Slavery ends in industrial societies
  - Patriarchal dominance wanes; empowerment of women
  - Radical increases in freedom, democracy, & education in industrial societies
  - Average lifespan increases from 49 in the year 1900 to 78 in year 2000 in the USA and Western Europe
Industrial Agriculture Era

Problems

- Values besides high productivity & low costs often ignored
- Greater & greater use of fossil fuels
- Environmental costs are very large & not factored into balance sheets & are borne by larger society
- Cheap processed food--66% of adult Americans are overweight & 30% are obese
- Industrialization of Animal Foods
  - Rise of Concentrated Animal Feeding Operations (CAFOs)
    - Tremendous animal pain & suffering
    - Decrease in food quality
    - Disease increase; dangerous overuse of antibiotics—70+% of world total given to livestock
  - Livestock now consumes 33% of world wheat, 2/3 corn, and ¾ of barley and soy = in total food for 2 billion people
Industrial Agriculture—Factory Farms

Egg-Laying Hens
Ecological agriculture...

- Thinks in terms of long-term environmental sustainability instead of productivity maximization.
- It thinks in holistic ecological metaphors vs. machine metaphors.
- Its early roots were in the 1920s and 1930s with gradual and continuous acceleration after WWII.
- The food categories include natural foods, organic foods, local foods, food artisans, ethically-traded foods, humanely-treated livestock animals, and sustainable seafood.
- Ecological agriculture seeks to correct the failings and limitations of industrial agriculture. It will evolve & become the dominant food paradigm over the next 50 years.
## Food Systems Comparison

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The Natural Foods movement began in the 1960s with the rise of the counter-culture.

It was a reaction against the Industrial Food era: romantic, back-to-nature, holistic, environmental, health, purity, skepticism of all chemical food additives, belief in “whole foods”, natural is good.

Natural Foods—no artificial ingredients, preservatives, flavorings, or sweeteners; minimally processed. Natural Foods = Whole Foods.
Natural/Whole Foods

Retail, Manufacturing, Producers in the early years: 1970s and 1980s

- Small stores and restaurants
  - Natural Foods Co-ops, Erewhon, Alfalfa’s, Unicorn, Nature’s, Bread & Circus, Mrs. Gooch’s, Whole Foods Market; Chez Panisse

- Small manufacturers
  - Celestial Seasonings, Eden Foods, Health Valley, Knudsen’s, White Wave, Hain, Ben and Jerry’s
Natural/Whole Foods
What Whole Foods is Doing

• Whole Foods has rapidly grown and consolidated the natural foods retailing business

• Our growth has created a much larger market which has helped thousands of small producers to both exist and to flourish

• Our success has helped expand consciousness about the value of natural/whole foods to millions of people

• We have helped improve the health and well being of millions of people
Ecological Era: Traditional Cuisines & Artisan Foods

- Most countries in the world have wonderful traditional cuisines. These cuisines are a collective human treasure to be protected and nurtured.

- Food Artisans exist throughout the world but have been steadily declining during the Industrial Era.

- Slow Food movement founded by Carlo Petrini in Italy in 1986 to protect and promote traditional cuisines & food artisanship within each unique eco-region. Now has 83,000 members in more than 100 countries.
Traditional Cuisines & Artisan Foods: What Whole Foods is Doing

- Promoting & supporting traditional cuisines from around the world in our stores
- Authentic Food Artisan designation
- Introducing Local Food Artisan designation
- Establishing $30 million venture capital fund to invest in unique food artisans around the world
Ecological Era: Organic Foods

Organic Agriculture

• Response by farmers and scientists to industrialization of agriculture
  – Rudolph Steiner, Biodynamic Agriculture
    • *Spiritual Foundations for the Renewal of Agriculture*, 1924
  – Sir Albert Howard, Father of Modern Organic Agriculture
    • Traditional farming in Bengal, India
    • *An Agricultural Testament*, 1940
  – Lady Eve Balfour and the Soil Association in the U.K.
  – J. I. Rodale in U.S.
Organic Foods

- Early Organic movement focused on health of soil; perceived as “living system”. Healthy Soil=Healthy Food=Healthy People
- Supply very limited and of questionable authenticity. No consensus on standards; fraud commonplace.
- Local organic not widely available because industrial farming had put most smaller farmers out of business.
- Concerns about pesticides and health of agricultural workers
- Organic movement created several independent certifying agencies prior to state certifications and the federal standards made into law in 2002.
Organic Foods

• Most organic produce doesn’t come from “Big Organic” corporate farms, although corporate farms are rapidly growing.

• At Whole Foods Market 22% of our organic produce comes from large corporate farms & 78% comes from independent family farms

• Whole Foods Private Label milk: 100% comes from family farms with an average herd size of 66 cows.

• Nor are larger organic farms necessarily bad. They have just as much potential to follow sound agro-ecological principles as small farms.
Ecological Era: Organic Foods

Current Market for Organic Products

- From $23 billion (2002) to est. $40 billion worldwide (2006)--$18 billion for USA (estimated)
- Demand concentrated in Europe and North America
- But they are experiencing undersupply since production isn’t meeting demand
- Large volume of imports coming from other regions capable of meeting demands
- Very rapid growth of organic now occurring around the world

Demand for organics high in Europe and North America

Demand outstrips availability within those agricultural supply chains

Oceania, Asia, Latin America, and Africa filling in the gap
Ecological Era: Organic Foods

Organic Farming Worldwide, 2007

- 633,891 farms
- 31 million hectares managed organically
  - Australia (11.8 million ha.)
  - China (2.3 million ha.)
  - US (1.6 million ha.)
- Organic: 0.7% of total agricultural land
- Highest percentage organic to conventional is in Europe

% Total Organic Land by Continent

Source: SOEL-FiBL Survey 2007
Ecological Era: Organic Foods

Arable Land in Organic Production by Continent

- N. America: 23%
- Oceania: 7%
- Africa: 1%
- Asia: 1%
- Europe: 66%
- L. America: 2%

Source: SOEL-FiBL Survey 2007
Ecological Era: Organic Foods

Highest Increase of Organic Land Area

- USA
- Argentina
- Italy
- Canada
- Poland
- Latvia
- Spain
- Portugal
- Germany
- Greece

Source: SOEL-FiBL Survey 2007
Ecological Era: Organic Foods

Organic Cereal Production

Source: SOEL-FiBL Survey 2007
Ecological Era: Organic Foods

Organic Citrus Fruit Production

Hectares

Source: SOEL-FiBL Survey 2007
Ecological Era: Organic Foods

Organic Cotton Production

Source: SOEL-FiBL Survey 2007
Ecological Era: Organic Foods

Organic Grape Production

Source: SOEL-FiBL Survey 2007
Ecological Era: Organic Foods

Organic Rice Production

Source: SOEL-FiBL Survey 2007
Ecological Era: Organic Foods

Organic Tropical Fruit Production

Source: SOEL-FiBL Survey 2007
Organic Foods—Benefits

- Health—higher nutrient levels & fewer pesticides
- Improved fertility & health of soil
- Increased biodiversity
- Reduced pollution from nitrogen & pesticides runoff
- Lessens risk to farm workers from pesticides
- Fossil fuels reduced from 35% to 50%
- Increased levels of carbon stored in soil reduces global warming
Organic Foods—Challenges

- Not cheap

- Inadequate animal welfare standards as illustrated by organic dairy controversy

- Organic is overly dominated by negative concepts—no artificial fertilizers, synthetic pesticides, GMOs, or irradiation

- Positive vision needed—soil fertility, animal welfare, environmental sustainability, nutritional quality, farm worker welfare, biodiversity, sound agro-ecological principles

- Creating an Organic-Farm Rating System
Organic Foods
What is Whole Foods Doing?

- We sold over $350 million in certified organic produce in 2005 & over $450 million in 2006
- We sold over $1 billion in total organic sales of all foods in 2006
- Whole Foods was largely responsible for creating the national supply chain for organic products throughout the United States
- We worked diligently to help create the national organic standards that exist today and have worked tirelessly to prevent these standards from being compromised
Organic Foods

What is Whole Foods Doing?

• Whole Foods is working to upgrade the animal welfare component of the current organic standards

• In the future Whole Foods will work toward creating a transparent Organic Farm Rating System

• No other food retailer comes close to matching the contribution Whole Foods has made in promoting organic foods in the United States
Ecological Era: Local Foods

- Explosive growth—estimated 4,385 farmers’ markets now in the U.S.—140% growth in 12 years, and up from only 340 in 1970.

- In U.K. there was one farmers market in 1997, now >500.

- Community Supported Agriculture (CSA) is also rapidly growing
Local Foods—Benefits

- Fresh, Fresh, Fresh, Fresh!
- Better taste
- Higher nutritional value
- Personal connections with farmers
- Supports local, independent family farmers
- Potentially keeps rural areas green by limiting development
- In many cases, lessens fossil fuel consumption
Local Foods—Challenges

- Usually cost more (if they didn’t cost more the industrial system would never have come to dominate)
- Not necessarily organic
- Not necessarily humane treatment of livestock animals
- Keeping more money in local communities—is this always a good thing? Risk of “community-based selfishness”.
- Fossil fuel savings greatly exaggerated by some advocates.
Local Foods—Food Miles

- Transportation miles are a relatively minor percentage of energy inputs; retail even smaller percentage
- Air transport uses twice as much energy as trucking and 20 times more energy than by ship or rail
- Most international food is transported by ship with high energy efficiency
- If you live in Berkeley, you will use less fossil fuel and produce less carbon dioxide by buying rice from Bangladesh than from California
Local Foods—Energy Use

Percent of Total Energy Use by Sector in U.S. Food Systems

- 18% Agricultural Production
- 25% Processing
- 25% Home Preparation
- 16% Transportation*
- 10% Wholesale/Retail
- 6% Restaurants


*may include energy costs of manufacturing vehicles
Local Foods
What is Whole Foods Doing?

Sourcing Local Produce

- **2005**—$122 million in total local produce sales; 14.87% of total produce sales
- **2006**—$163 million in total local produce sales; 16.37% of total produce sales
- **2007**—estimated $220 million in total local produce sales; approximately 20% of total produce sales
- **2010**—estimated $500 million in total local produce sales and 25% of total produce sales

**Why Buy Local Produce?**

- Supports Local Independent Family Farmers
- Reduces Fossil Fuel Consumption
- Keeps Our Rural Areas Green by Limiting Development
- Preserves Our Connections with Our Food Sources
- Better Flavored Varieties
- Fresher Product with Greater Shelf Life
- Encourages Biodiversity
Local Foods
What is Whole Foods Doing?

- Over 50 of our stores regularly have local farmers markets in their parking lots
- Promoting local grower conferences across the USA
- $10 million each year in new loans to local farmers and local producers
- Whole Foods Market is doing more to promote local foods than any other retailer in the United States
Local Producer Loans

- Full Circle Farm
  (a.k.a. Rocky Mountain Pumpkin Ranch)
  Longmont, Colorado
  - Organic produce, heirloom varieties
- Loan Purpose
  - Build a produce-packing shed
  - $96,000
- Story:
  - Has been in agriculture for over 20 years; 7 years as a WFM vendor; has partnered with Boulder County Open Space to keep greenbelt from development.

Approved
Local Producer Loans

- Valley End Farm
  Santa Rosa, California
  - Organic produce
- Loan Purpose
  - Purchase and install irrigation or cooler box
  - $80,000
- Story:
  - Single mom who runs farm with her son, wants to expand to include her daughter

Approved
Local Producer Loans

• Haystack Mountain Goat Dairy
  Boulder, Colorado
• Loan Purpose
  – Build a nursery for the goat kids housing up to 140 at a time
  – $50,000
• Story:
  – Haystack offers community education: farm visits & tours, cheese-making internships and community outreach programs; also supports a prison work program at the Canon City federal prison. The inmates raise and tend herd, sell off milk, which Haystack purchases to produce cheese.

Approved
Local Producer Loans

- MouCo Cheese Company
  Fort Collins, Colorado
  - Artisanal cheeses
- Loan Purpose
  - Purchase cheese-making forms and support equipment
  - $40,000
- Story:
  - A unique cheese making process used by MouCo allows for reduced utility costs as 80% of the original heat is recaptured, waste is reduced. The company has a goal to become wind-powered in the near future.

Approved
Local Producer Loans

- Buzzn Bee, Inc.
  West Palm Beach, Florida
  - Honey and bee products
- Loan Purpose
  - Freezer units
  - $24,000
- Story:
  - Long-time WFM vendor is branching out into crystallized honey
  
  Funded
Local Producer Loans

- Revolution Foods
  Emeryville, CA
  - Organic retail product line for kids (lunches, etc.)

- Loan Purpose
  - Develop new product line of healthy kids’ foods
  - $95,000

- Story:
  - Company goal is to dramatically improve the food and food service experience in schools. They are the first company to provide the combination of quality food, nutrition education, and operational support to schools at a price that fits the requirements of the National School Lunch Program.

Approved
Currently 1 billion people live on less than $1 per day; 2.5 billion on less than $2 per day

Oxfam—"History makes a mockery of the claim that trade cannot work for the poor. Participation in world trade has figured prominently in many of the most successful cases of poverty reduction—and compared with aid, it has far more potential to benefit the poor."

Growing food for one’s family or for export is not an either/or choice. Small farmers can do both.

Buying certified organic and ethically traded foods from the developing world helps to reduce poverty

In 1986 in Uganda 56% of the population lived in poverty. By 2000, through trade liberalization and agricultural exporting, poverty had fallen to 35%.
Ethically Traded Foods—Issues

Farm Subsidies:

• The 29 most affluent countries in the world are currently giving $360+ billion in farm subsidies each year. These subsidies are causing great harm to farmers in the developing world, especially in Africa and Latin America.

• The wealthiest 20% of the farmers receive 80% of the subsidies.

• In the EU the average cow receives $2.50 in subsidy support each day (while 42% of the world's population lives on less than $2 a day).

• Agricultural Commodity price stability—premium prices paid where appropriate

• Labor practices—child labor, sweatshops, collective bargaining rights

• Environmental sustainability
Ethically Traded Foods
What Whole Foods is Doing

• While promoting the expansion of local agriculture, Whole Foods is also selling organic foods from around the world, including tens of millions of dollars worth of certified organic products from developing world farmers.

• Promotion of ethically traded products from Fair Trade and Rainforest Alliance

• Whole Trade Guarantee
The Whole Trade Guarantee

- We are launching a new program in March which we call The Whole Trade Guarantee
  - Quality Guarantee
  - Price Guarantee
  - Labor Practices Guarantee
  - Environmental Sustainability Guarantee
  - 1% of Sales to Whole Planet Foundation

- Our goal is to have over 50% of our imported products from the developing world sold with The Whole Trade Guarantee within 10 years.

- Partnering initially with TransFair USA, FLO, and Rainforest Alliance to certify labor and environmental practices
Whole Trade Products

- Coffee
- Bananas
- Tea
- Chocolate
- Mangoes
- Rice
- Pineapple
Whole Trade Guarantee

• 1% of all WTG retail sales will be donated to The Whole Planet Foundation to help end poverty

• The Whole Planet Foundation works with Nobel Peace Prize winner Muhammed Yunus & the Grameen Trust to end world poverty.
The mission of the Whole Planet Foundation is to create economic partnerships with the poor in those developing world communities that supply our stores with product.

Through innovative assistance for entrepreneurship we seek to unleash the energy and creativity of every human being we work with in order to create wealth and prosperity in emerging economies.

We currently work in Guatemala, Costa Rica and soon in India, Honduras, and Nicaragua.
Whole Planet Foundation
Where We Work

Limon Province
Costa Rica

$380,048
Loaned to
1,943 Borrowers

100% women
100% Repayment to date

Loans used for:
• Agriculture
  • produce
  • poultry & pigs
• Clothing manuf./sales
  • new & used
• Linens
• Small stores
• Restaurants

Where WFM Sources Bananas and Pineapples
Lake Atitlan Region
Guatemala

Where WFM Sources Coffee

$226,834

Loaned to
1,717 Borrowers

100% women
100% Repayment to date
2006
Guatemala
Costa Rica

2007
Honduras
Nicaragua

2007
Assam, India
Ecological Era: Animal Welfare

• None of the current animal welfare standards in the US and Canada are high enough, including the Organic Standards

• Whole Foods has been working for the past 3.5 years now with a variety of animal welfare groups including Humane Society USA, PETA, Animal Welfare Institute, Animal Rights International, Farm Sanctuary, and VIVA! to create humane standards.
Whole Foods has discontinued the sale of foie gras, tethered veal, & live lobsters (everywhere but Maine)

- Animal Compassion Foundation
- Animal Compassionate Standards
- Animal Welfare Buyers
- 5-Star Rating Program
Whole Foods is launching a program which will eventually rate all animal products sold in our stores on the basis of animal welfare.

The first star benchmark rating will be equivalent to our current animal welfare standards. Four and five stars will be awarded to only the most humane producers.

Our standards will be completely transparent and the star rating will be eventually placed on 100% of the animal products sold in our stores.

All ratings will be based on 3rd Party Auditing.

We intend to work with animal welfare organizations and other retailers around the world to try to create universally accepted animal welfare standards.
Discovering and sharing knowledge to improve the lives of farm animals.

- Founded 2005; we’ve donated over $1 million so far
- Funding research projects:
  - Alternatives to castration of pigs (herbal supplement)
  - Alternative strategy for on-farm control of flystrike in sheep
- Producer workshops nationwide
  - Grazing series
  - Homeopathy for animals
Ecological Era: Sustainable Seafood

- Worldwide we are using about 300 billion pounds of seafood per year.
- North Atlantic Cod has been reduced by 98% in the past 40 years; white abalone is almost extinct; Bluefin tuna reduced by 75% to 90%; many other species are being fished beyond sustainability.
- Coral Reefs are being systematically destroyed.
- Save the Whales! Still being hunted by Japan, Iceland and Norway. Many of the great whales are in danger of extinction.
Ecological Era: Sustainable Seafood

- Tragedy of the Commons
- Industrial fishing technologies are incredibly efficient
- Problem of by-catch—15 billion pounds a year, 27% from shrimp fishing
- Aquaculture now responsible for 30% of all fish eaten. However, it has all the same problems that CAFOs have for land livestock animals—serious environmental and animal welfare issues
Sustainable Seafood
What Whole Foods is Doing

• **Not Enough!!**
  - We have discontinued the sale of fish considered by many experts to be endangered and are working on tightening up our standards
  - First US food retailer to support Marine Stewardship Council (MSC) and their multi-stakeholder approach toward sustainable sea foods in 1999.
  - Nationwide education & product promotion of MSC-labeled products
  - Animal welfare standards for farmed fish in process
  - We encourage everyone to be mindful of their seafood consumption—both what you buy, and eating in moderation
Ecological Era—Evolving our Thinking

• **New thinking, new mindsets**
  – Don’t romanticize the past. There was never a “golden age”.
  – The Industrial Era expresses a certain type of consciousness & the Ecological Era expresses a different kind—work to raise your own
  – Learn to think with a Holistic Systems mind—multiple stakeholders, multiple bottom-lines, everything is connected

• **Stop the “Morality Play Madness”**
  – Avoid thinking of these issues in terms of “good guys and bad guys”
  – Corporations are not inherently evil but simply express the consciousness of their leadership & culture
  – Conscious Capitalism
  – Sustainability necessarily includes profit
  – Let your food choices reflect your personal values

• **“Criticize by Creating”**
  – Humans are capable of endless creativity and limitless love
  – What will your contribution be to help evolve our food system toward the Ecological Era of the future?