

VIEW from the COMMON

DEDICATED TO THE PURSUIT OF FINANCIAL RETURN AND SOCIAL CHANGE

BOSTON COMMON ASSET MANAGEMENT, LLC

FALL, 2008

Sustainable Agriculture for the Social Investor



James Helmer / GlobalAware

A woman sells fruit at a market in Bali. The rising cost of food and gasoline led to unprecedented street protests in Indonesia, where food prices had risen 35 percent in the past year as of April 2008.

Biofuels Promise: Can They Deliver?

Nathan Foley-Mendelsohn

In May 2006, the common stock of Pacific Ethanol, an early entrant into the public capital markets for U.S. ethanol production, reached a market value of over \$1.2 billion.* At that time, the firm didn't have a single ethanol plant on line; it had just raised over \$200 million for construction. Enthusiasm for Pacific Ethanol sent a perverse signal to market participants: you could build an ethanol plant, no unique expertise required, and sell it to the public for five times what it cost to build. Within a year, numerous ethanol companies went public, touting aggressive plans for new production.

By the autumn of 2007, the new plants were churning out more ethanol than the distribution infrastructure could handle. A vicious cycle began to unfold; the corn harvest couldn't keep pace with demand, adding further pressure to corn prices, and input costs for ethanol producers grew. Producers started losing money and over-inflated stock prices quickly collapsed. As of this writing, shares of Pacific Ethanol fell for less than 10 percent



adding further pressure to corn prices, and input costs for ethanol producers grew. Producers started losing money and over-inflated stock prices quickly collapsed. As of this writing, shares of Pacific Ethanol fell for less than 10 percent

*Information provided in this newsletter should not be considered as a recommendation to buy or sell a security.

of their peak value. A similar dynamic occurred in the European biodiesel market – a construction boom led to overcapacity, input prices ballooned, stock prices crashed, firms lost money, and stocks now trade below book value.

The crash in the Western biofuels markets occurred not only because of over-speculation, but also because the core proposition wasn't sustainable. On the surface, the proposition looked great: fuels derived from home-grown corn, soy, and canola would bring security to a stressed energy market, burn more cleanly than fossil fuels, and ostensibly create little drain on the earth's carbon reservoir.

Continued on page 6

Agriculture plays a significant role in the functioning of the global economy and the quality of our lives. In this edition of *View from the Common*, we present various aspects of agricultural production and explore key linkages to socially concerned investors, from biofuels to genetic engineering to the composition of the world diet.

Inside:

-  **Fueling the Future:** Biofuel technology today is not sustainable in the long term, but next generation biofuels hold promise, writes Boston Common Energy Analyst **Nathan Foley-Mendelsohn** 1
-  **Loss of Appetite:** In a conversation with Boston Common, **Heather White, Founder of Verité and New Standards**, discusses obstacles to food access and how unsafe food is making it to the table 2
-  **Food for Thought:** Effects of Agriculture on Climate Change 2
-  **Out to Lunch:** The promises of genetically modified organisms remain largely unfulfilled, writes **Steven Heim, Director of Social Research and Advocacy at Boston Common** 3
-  **Global Land Use and the World Diet:** Graphical representations of the world's crop land, what people are eating, and future consumption trends in various countries 4
-  **Six Rules for Eating Wisely.** We present award winning author **Michael Pollan's** guide to eating and why we should resist "food like products" 5

Loss of Appetite: Agribusiness and the Demand for Supply

An Interview with Heather White, Founder of Verité and New Standards

Food Security, or dependable access to a sufficient and safe supply of food, has become an important umbrella concept for analyzing the dynamics of food production, distribution, and consumption. Food insecurity begins when access to basic sustenance is threatened. If unresolved, widespread starvation can result. Even when less severe, threats to food security have vast economic, political, and humanitarian consequences. Boston Common sat down with Heather White, founder of Verité and more recently of New Standards, to discuss the state of food access and food safety in the world today.

BCAM: *Many who are concerned with food security emphasize developing family-scale farms. Why are local farms of such strategic importance?*

HW: Traditionally, small farms practice sustainable agriculture, targeted to local conditions. Countries in the developing world take on economic risk they are not often able to handle when they become dependent on imports and the global petroleum economy, which supplies fertilizers. Potential currency fluctuations and inflation can dramatically increase the cost of imports. Countries reporting food crises in the past three years are large population, rural countries that traditionally have relied on agrarian models of food sustainability and security—such as India, the Philippines, and Burma. These nations are neither prepared to import vast quantities of staple foods at world commodity prices, nor to absorb the sharp price fluctuations of world currency markets. In most instances, nations will have more reliable access to food by promoting diversified agriculture at home and exporting the excess, as opposed to relying on imports to meet

basic sustenance requirements.

BCAM: *International trade has been called both a help and a hindrance to food security. What role do you see trade playing?*

HW: One billion people are malnourished around the world, according to the UN, with approximately 25,000 dying every day from hunger. The UN Secretary General Ban Ki-moon admits these are catastrophic statistics, as food prices have risen 83 percent in the last three years. These numbers indicate the industrial food policies largely imposed on the developing world by global lending agencies, such as the World Bank and IMF, are failing. One contributing factor is legislation recommended by the World



One billion people are malnourished around the world, with 25,000 dying every day from hunger...food prices have risen 83 percent in the last three years.

Bank and IMF under WTO rules that opened the domestic markets of less developed countries to global corporations. Corporations often undercut the prices of the local producers in order to gain market share, then raise prices steadily over time. World Bank policies have also promoted replacing subsistence agriculture with cash crops for export to the U.S. and E.U. countries: flowers, salad lettuces, and snow peas, which are not local staple crops and often require high amounts of chemicals in production. Several media stories have reported the severe health problems and poor labor conditions experienced by workers in the cut flower export sectors in Ecuador and Colombia.

BCAM: *Multinational corporations are also frequently cited as a threat to food security and the environment. Has agribusiness undermined food security?*

HW: Global corporations influence legislation to promote energy-intensive models of agriculture in the developing world. The high carbon footprints of fertilizers increase rather than reduce global warming due to the chemical processing involved, as well as the transportation costs of moving them around the world. Dependence on chemical fertilizers and pesticides over time brings a reduction in the fertility of the land, as the soil becomes depleted from loss of carbon.

Bio-piracy, the patenting of naturally occurring plants and seeds, is another negative outcome of corporate-dominated world food production. For example, in the past twenty years, U.S. corporations have patented seeds that Indian farmers have been using for thousands of years. The corporations are now suing farmers to prevent them

Continued on page 7

FOOD FOR THOUGHT:

Agriculture and Climate Change

Agricultural production contributes to climate change through the release of greenhouse gases. Livestock and soil tilling emit carbon and other greenhouse gases into the atmosphere, as does the production and transportation of fertilizers, use of machinery, and the clearing of forests to establish crop land and pasture.

 18 to 25 percent of total global carbon emissions are caused by logging and burning trees and vegetation, often to establish agricultural production.

 12 million tons of carbon dioxide would be saved from release into the atmosphere if Americans reduced meat consumption by 5 percent.

 \$852 billion worth of food was transported around the world in 2005.

 47 percent of world agricultural emissions in 2007 were attributed to converting land to agricultural use.

Out to Lunch Over Genetically Engineered Food

Steven Heim

In 2008, shortages in staple grains and accompanying price spikes precipitated riots in a number of countries, predictably leading to renewed claims about the importance of genetic engineering for increasing the world's food supply. In the midst of the crisis Nestlé's chairman announced to the press, "You cannot today feed the world without genetically modified organisms." Claims like Nestlé's place the debate over genetically modified organisms (GMOs) in the wrong terms. GMOs are not the exclusive means to increasing the world food supply: traditional plant breeding techniques continue to produce important developments in agriculture that easily outstrip the present contributions of GMOs. More importantly, an adequate food supply does not guarantee global food security. Developing paths towards sustainable agriculture and equitable distribution of resources remain the key to addressing the global food crisis. Claims like Nestlé's obscure the root causes of world hunger and undermine a clearheaded analysis of GMOs, which have had only limited success when measured against their potential harm.

In a 2008 report, the International Assessment on Agriculture Science and Technology for Development (IAASTD), saw little present role for GMOs in alleviating global hunger and malnutrition, arguing that "assessment of the technology lags behind development, information is anecdotal and contradictory, and uncertainty about possible benefits and damage is unavoidable." These problems become especially sharp compared to the success of traditional plant breeding techniques.

Classical plant breeding techniques develop desirable traits by interbreeding related plant strains to create progeny that outperform either parent. Advances in modern genetics and molecular biology have led to vast improvement in classical plant breeding, but it remains an extension of the type of selective breeding routinely performed by farmers, gardeners, and agronomists skilled in plant grafting and selection. Genetic engineering, by contrast, uses recombinant DNA technology to introduce a specific gene into a plant, sometimes from a different species. For example, in 1991 scientists attempted to introduce a gene for cold-resistance isolated from the Atlantic flounder into a tomato to improve the



tomato's resistance to frost. Scientists were unable to breed the so-called "fish tomato," but such cross-species transfers remain a stock-in-trade of genetic engineering.

Over the past century, traditional plant breeding techniques have repeatedly improved our ability to boost crop yields or to establish agriculture in environments not disposed to cultivation. For example, in the 1990s, the high yield potential of Asian rice was successfully crossed with the stress resistance of native African rice. The result was a new rice variety well suited to Africa's method of upland or dry rice farming. Today, 70 percent of Africa's rice is cultivated using these methods and the cross-bred rice seed has made rice farming in Africa significantly more productive.

Traditional plant breeding was also instrumental to the Green Revolution led by agronomist and anti-hunger activist, Norman Borlaug. Borlaug's dwarf wheat, introduced in the 1950s in Mexico, was bred by painstakingly crossing the genes of various wheat varieties for shorter stalks able to support more grain heads and protect the crop from weather damage, which plagued long stem varieties. This greatly expanded overall yield. The dwarf wheat varieties were planted throughout Mexico, India, and Pakistan.

The Green Revolution has had its own problems, such as increased use of water, fertilizers and pesticides. Even with these problems, modern transgenic GMOs have yet to match that of hardy African rice or Borlaug's dwarf wheat. Champions of GMOs say they are safe, and the technology will allow new GMO crops to be developed that are more nutritious, grow in harsh climates, and have higher yields, as traditional cross-breeding has already done. Possibly, but even the current Chairman of genetically engineered seed producer Syngenta has acknowledged the ability of GMOs to fulfill such promises remains at least 20 years off.

The most widespread forms of GMOs planted today are herbicide-tolerant or insect-resistant corn, soybeans, cotton, or canola grown primarily in the U.S., Argentina, Brazil, Canada, Europe, and Asia. In 2008, 92 percent of the soybeans and 80 percent of the corn planted in the U.S. were genetically engineered varieties. According to some estimates,

Continued on page 6

Boston Common's Advocacy History on Sustainable Agriculture

1997: Questions Ciba Geigy on its marketing of pesticides in developing countries.

1999: Shares concerns with Novartis on lack of long-term safety testing and risks of pest resistance in its genetically engineered (GE) seeds.

1999 – 2002: Helps draft first shareholder proposals filed with U.S. food companies advocating for the phase out of GE ingredients and/or labeling of products containing them.

1999 – 2002: Leads engagements with Kroger, Albertson's, Yum Brands, and ConAgra. Kroger proposal on GE foods receives record support.

2001: Sends representatives to Aventis stockholder meeting in France to raise concerns about its genetically engineered seed business, which was later sold to Bayer.

2003: Begins rejecting major producers of GE seeds for investment in comprehensively screened portfolios.

2003 – 2004: Files shareholder proposals with Applebee's asking company to report on use of GE ingredients.

2005 – 2007: Leads shareholder proposals with Dean Foods on organic dairy standards, resulting in improved practices and reporting.

2008: Raises concerns with Costco on marketing of organic milk from factory farms.

Geography of Global Land Use & Food Consumption

Nathan Foley-Mendelsohn

These charts illustrate, among many things, how the convergence of South and East Asia to developed dietary standards is placing new demands on global crop cultivation and natural ecosystems.

Chart 1 shows the relationship between food consumption and GDP. Much of the world's population is rising from low levels of income and caloric intake, but still lags far behind the developed world on both measures.

Chart 2 reviews the components of the human diet. A large portion of the world's calories are consumed in subsistence-level, cereal-based diets in South and East Asia. The South Asian diet is largely lactovegetarian, and therefore particularly efficient in land use. In contrast, the diets of North America and Western Europe favor more costly and land-intensive animal proteins and sugars. In recent decades, a mix shift in developing nations to more protein- and sugar-intensive diets as formed a major component of increasing agricultural demand.

Chart 3 turns to the use of agricultural and forest lands. The resource-rich regions on the left, with ample cultivated acreage per person, have space for produce crops and pasturelands, which yield fewer calories per acre than staple crops. These regions also contain much of the world's forests, which are threatened by expanding agricultural production. In the last fifteen years, the net growth of forests in Europe, North America, and Northeast Asia has not offset

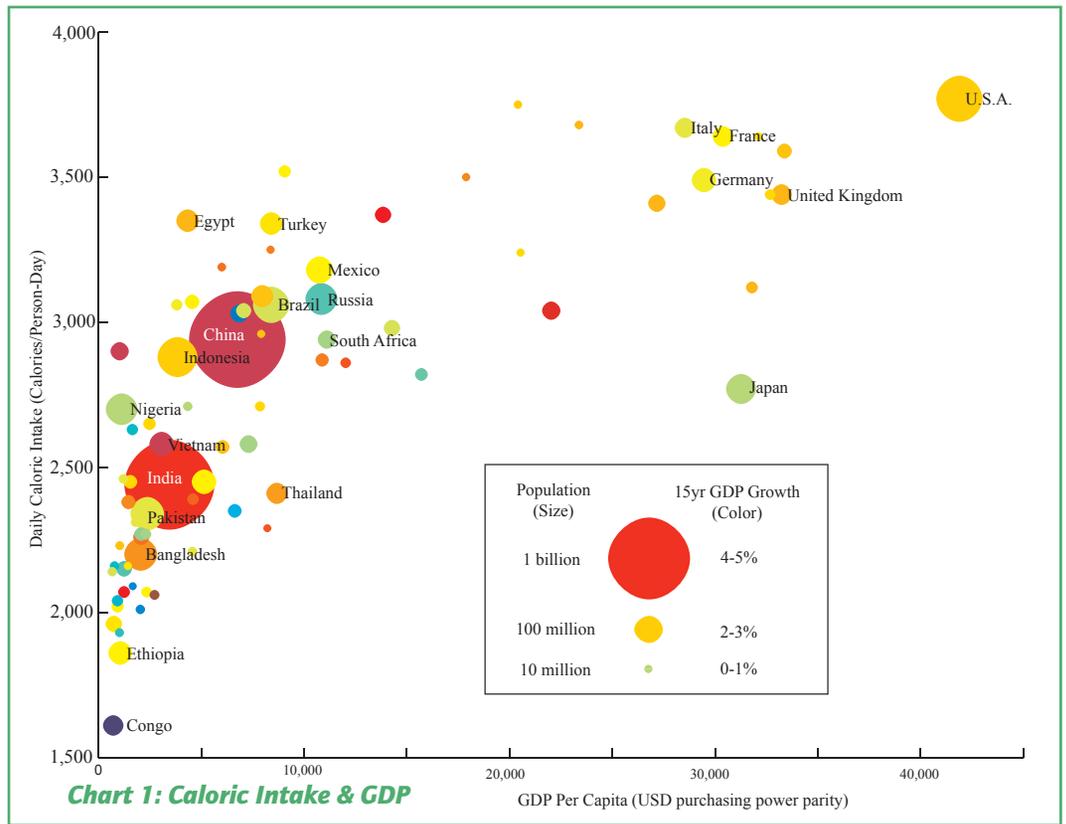


Chart 1: Caloric Intake & GDP

rapid deforestation in the denser Latin American, African, and Southeast Asian jungles.

The population-dense regions on the right in Chart 3 depend on higher-yielding cereals such as rice, as well as intense agricultural land use—in South Asia, half of all land is under cultivation. Dietary improvements in these regions hinge on extending their own heavy land use or importing from the regions with more available land, placing newfound stresses on those regions.

Sources: UN Food & Agriculture Organization, UNDP Human Development Index, CIA World Factbook.

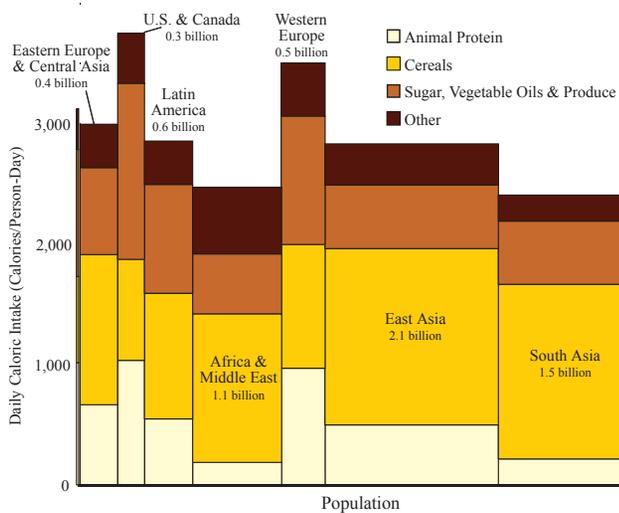


Chart 2: Components of Diet & Caloric Intake

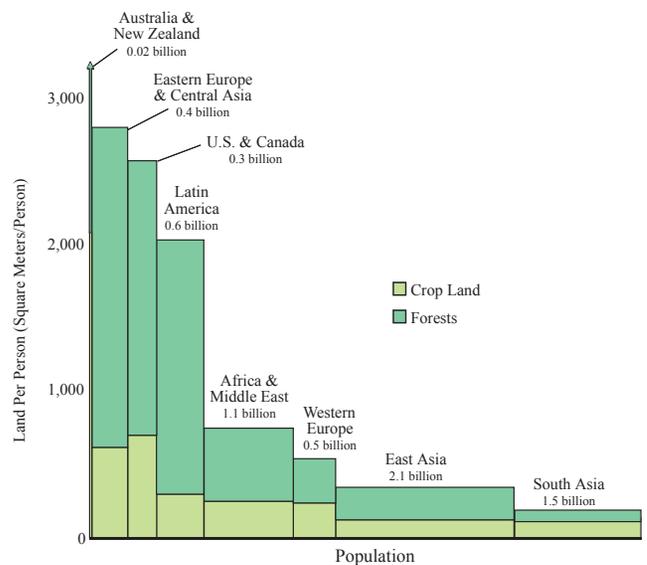


Chart 3: Crop Lands & Forests

Six Rules for Eating Wisely

Michael Pollan

Once upon a time Americans had a culture of food to guide us through the increasingly treacherous landscape of food choices: fat vs. carbs, organic vs. conventional, vegetarian vs. carnivorous. Culture in this case is just a fancy way of saying “your mom.” She taught us what to eat, when to eat it, how much of it to eat, even the order in which to eat it. But Mom’s influence over the dinner menu has proved no match for the \$36 billion in food-marketing dollars (\$10 billion directed to kids alone) designed to get us to eat more, eat all manner of dubious neofoods, and create entire new eating occasions, such as in the car. Some food culture.

I’ve spent the past five years exploring this daunting food landscape, following the industrial food chain from the Happy Meal back to the not-so-happy feedlots in Kansas and cornfields in Iowa where it begins and tracing the organic food chain back to the farms. My aim was simply to figure out what—as a nutritional, ethical, political and environmental matter—I should eat. Along the way, I’ve collected a few rules of thumb that may be useful in navigating what I call the Omnivore’s Dilemma.

Don’t eat anything your great-great-great grandmother wouldn’t recognize as food. Imagine how baffled your ancestors would be in a modern supermarket: the epoxy-like tubes of Go-Gurt, the preternaturally fresh Twinkies, the vaguely pharmaceutical Vitamin Water. Those aren’t foods, quite; they’re food products. History suggests you might want to wait a few decades or so before adding such novelties to your diet, the substitution of margarine for butter being the classic case in point. My mother used to predict “they” would eventually discover that butter was better for you. She was right: the trans-fatty margarine is killing us. Eat food, not food products.

Avoid foods containing high-fructose corn syrup (HFCS). It’s not just in cereals and soft drinks but also in ketchup and bologna, baked goods, soups and salad dressings. Though HFCS was not part of the human diet until 1975, each of us now consumes more than 40 lbs. a year, some 200 calories a day. Is HFCS any worse for you than sugar? Probably not, but by avoiding it you’ll avoid thousands of empty calories and perhaps even more important, cut out highly processed foods—the ones that contain the most sugar, fat and salt. Besides, what chef uses high-fructose corn syrup? Not one. It’s found only in the pantry of the food scientist, and that’s not who you want cooking your meals.

Spend more, eat less. Americans are as addicted to cheap food as we are to cheap oil. We spend only 9.7% of our



income on food, a smaller share than any other nation. Is it a coincidence we spend a larger percentage than any other on health care (16%)? All this “cheap food” is making us fat and sick. It’s also bad for the health of the environment. The higher the quality of the food you eat, the more nutritious it is and the less of it you’ll need to feel satisfied.

Pay no heed to nutritional science or the health claims on packages. It was science that told us margarine made from trans fats is better for us than butter made from cow’s milk. The more I learn about the science of nutrition, the less certain I am that we’ve learned anything important about food that our ancestors didn’t know. Consider that the healthiest foods in the supermarket—the fresh produce—are the ones that don’t make FDA-approved health claims, which typically festoon the packages of the most highly processed foods. When Whole Grain Lucky Charms show up in the cereal aisle, it’s time to stop paying attention to health claims.

Shop at the farmers’ market. You’ll begin to eat foods in season, when they are at the peak of their nutritional value and flavor, and you’ll cook, because you won’t find anything processed or microwavable. You’ll also be supporting farmers in your community, helping defend the countryside from sprawl, saving oil by eating food produced nearby and teaching your children that a carrot is a root, not a machine-lathed orange bullet that comes in a plastic bag. A lot more is going on at the farmers’ market than the exchange of money for food.

How you eat is as important as what you eat. Americans are fixated on nutrients, good and bad, while the French and Italians focus on the whole eating experience. The lesson of the “French paradox” is you can eat all kinds of supposedly toxic substances (triple crème cheese, foie gras) as long as you follow your culture’s (i.e., mother’s) rules: eat moderate portions, don’t go for seconds or snacks between meals, never eat alone. But perhaps most important, eat with pleasure, because eating with anxiety leads to poor digestion and bingeing. There is no French paradox, really, only an American paradox: a notably unhealthy people obsessed with the idea of eating healthily. So, relax. Eat Food. And savor it.

Reprinted with permission from the author.

■ *Michael Pollan is the author, most recently, of In Defense of Food: An Eater’s Manifesto, The Botany of Desire: A Plant’s-Eye View of the World, and The Omnivore’s Dilemma: A Natural History of Four Meals, which has won numerous accolades. A contributing writer to the New York Times Magazine, Mr. Pollan is the Knight Professor of Science and Environmental Journalism at UC Berkeley.*

Biofuels

Continued from page 1

Government mandates and subsidies would facilitate adoption. But in fact, the traditional North American and European biofuel feedstocks have poor large-scale economic and environmental viability.

The largest hurdle to widespread biofuels use is the availability of arable land, on which many established feedstocks place overwhelming demands. In the U.S., for example, an estimated 28 percent of the 2008 corn crop already is earmarked for ethanol production, meeting less than 10 percent of our transport fuel needs. Soy and canola yield much lower biofuels output per acre even than corn, because the oils harvested from them are small portions of the plants' biomass. Larger portions of the plants are used as protein in animal feed, and would be oversupplied if crop production were scaled up. A 2002 article in the journal *Science* suggested that to completely replace gasoline with biofuels using present technologies we would need to double the amount of crop land in the world. Reallocating cropland to biofuels already is contributing to agricultural land scarcity, placing upward pressure on food prices and biofuel production costs, a cycle that can only continue as demand for biofuels increases.

In the near term, the pressure on land use may be resolved by expanding onto uncultivated land, but only at high environmental

and economic costs. Cultivating new land requires replacing the richer biomass of natural ecosystems, causing a drain on the earth's ability to add to its carbon reservoir. Recent articles in the journal *Science* estimated that it would take 167 years for the emissions savings from ethanol use to compensate for the cost of replacing uncultivated biomass with cropland. Semi-arable or marginal land can also be cultivated with biofuel feedstock, but only at the price of lower yields and higher production costs.

In addition to its land requirements, industrial-scale biofuels production uses massive amounts of energy: fertilizers synthesized from petrochemicals; fuel-powered machinery to reap the harvest and transport it; and heat and electricity to process crops into liquid fuels. An important indicator of a biofuel's viability is its "net energy balance" – the ratio of how much energy you get by burning it relative to how much you put in to make it. While there is some use simply in converting non-storable electricity into transport fuels, in general a fuel source should have a high net energy balance; otherwise, it will take a lot of additional resources (currently, fossil fuels) to produce it. Despite optimistic results sponsored by the U.S. Department of Agriculture, thermodynamic studies conducted by professors at Cornell and Berkeley suggest that U.S. corn-based ethanol has a net energy balance below one – it takes more energy to make it than you get from burning it. Soy and canola are better, but not great, at

Continued on page 7

GMOs

Continued from page 3

60 percent of soybeans and 72 percent of corn were ultimately fed to livestock. Dr. Vandana Shiva, author of *Manifestos on the Future of Food and Seed* and a long time opponent of genetically engineered crops, notes that current GMOs alter only a single trait and that multiple alterations will be needed to promote yield and environmental resilience. According to Dr. Shiva, "as a pest-control strategy GM crops are a failure. Integrated pest management and controlling pests through mixtures is much more scientific and effective."

In pest resistant corn, for example, the bacteria gene bacillus thuringiensis, or Bt, is inserted into the corn plant. Bt is a natural insecticide that allows corn to protect itself from insects, presumably negating the need for Bt or other pesticides to be applied to the crop externally. Insects build resistance to the continually emitted Bt over time, and improved resistance limits the effectiveness of the GMO. This is harmful to organic farmers, who depend on Bt for handling occasional infestations.

Splicing genes from unrelated species does have the potential to develop a tailored set of traits unavailable through traditional crossbreeding, but such direct intervention in a plant's genetic code also carries with it an increased danger of disrupting a complex set of ecological checks and balances. For example, the salt-tolerant rice GMO currently under development could pass the trait on to wild grasses, enabling them to take hold in salt water marine estuaries

and over-run their ecosystems.

Genetic engineering has experienced greater success in the development of pharmaceutical and industrial products, including insulin for diabetes and microbes used in waste water treatment. Without dismissing GMOs altogether, their limited current success in food production for developing countries, their potential dangers, and the availability of alternatives that have already led to tangible advances in agriculture, justify caution moving forward.

A sustainable solution to malnutrition and hunger is unlikely to be uncovered in the genetics wing of western agribusiness. The cost-benefit debate will continue, but, at best, the most useful technological advances are far off and may be addressed more efficiently and safely by continued progress in traditional agricultural science. Whatever the future developments in GMOs, addressing poverty will remain largely outside their scope. Coupling genetic modification of food crops with solving the hunger crisis, as Nestlé and other players in industrial agriculture often do, distracts us from pursuing more meaningful solutions. Developing fair trade policy, localizing food production in agrarian communities, and promoting traditional agricultural breeding methods that have a proven record of success provide a more direct and sustainable route.

■ *Steven Heim is Director of Social Research and Advocacy at Boston Common and has over 17 years experience in SRI. Steven served on the Vermont PIRG board of trustees for 15 years and has held positions at Rural Vermont and the Massachusetts Department of Food and Agriculture.*

Biofuels

Continued from page 6

net energy balances of two to three. In the long run, the burden of these feedstocks on our energy resources will be too much to bear.

This isn't to say that biofuels in aggregate are doomed. Certain tropical and subtropical feedstocks have much better economics and resource use, but mixed environmental profiles, as their cultivation encroaches on natural ecosystems. And "Next Generation" biofuels, derived from inedible crop residues, wood, or algae, hold still greater promise, though the technology is only developing.

Brazilian sugar cane is an established and viable feedstock for ethanol, because it produces far more biomass per acre and per unit of energy input than U.S. corn or European canola. Because of its high crop yield and low fertilizer requirements, Brazilian sugar ethanol's production costs are substantially lower than those of gasoline, and the end product achieves a net energy balance of 8:1. While protective tariffs keep this fuel out of the U.S. and European markets, Brazil's abundant sugar crop, a veritable "Saudi Arabia of ethanol," provides a cheap, relatively sustainable fuel source for the Brazilian market, supplying over 20 percent of the country's transport fuels from a manageable portion of its crop lands.

But even with Brazilian sugar cane, environmental concerns persist. Sugar production occurs primarily in Brazil's Southeast, where it is encroaching relentlessly on pasturelands, small farms, and wild savannah. Although sugar is not typically grown in Amazonian regions, soybean and sugar production are pushing cattle grazing into these areas, placing an ever widening swath of Brazil under cultivation. Brazilian forest area is declining at an annual rate of 0.5 percent, accounting for almost half of the world's loss in forestland. Cultivation of palm for biodiesel in Indonesia and Malaysia also is highly productive, but is strongly associated with deforestation.

Food Security

Continued from page 2

from saving seeds from their harvests—a foundation of sustainable agriculture and something they have done for generations.

BCAM: *In light of troubling reports on declining food safety, what do you view as the greatest challenges to ensuring our food is safe to eat? What can we do to improve food safety going forward?*

HW: Recently, the international media have been reporting extensively on food safety issues, notably on products from China contaminated with harmful pesticides and toxins, such as infant formula and milk products as well as fresh ginger labeled "organic." Urban populations are often more exposed to imported food: grocery stores are filled with produce imported from around the world.

Next-generation biofuels show greater promise as an energy efficient, environmentally friendly fuel source, but are still in relatively early stages of development. Biofuels derived from cellulosic biomass such as crop residue, switch grass, or wood would conserve land while maintaining a high net energy balance. Processing costs for cellulosic biomass are currently twice those of traditional ethanol sources, but advances in gasification and enzymatic conversion, the two major processing technologies, promise future cost improvements and greater economic viability. Also in development are micro-algae that produce lipids that can then be processed into fuel. Since algae ponds do not require agricultural land or fresh water, they would not further strain cropland.

Some might look to the escalating biofuels mandates planned by U.S. and European governments in coming years along with the abrupt decline in new plant construction and perceive better times

To completely replace gasoline with biofuels using present technologies we would need to double the amount of crop land that exists in the world today.

ahead for current biofuels industries. But in the long run the U.S. corn-based ethanol and European biodiesel programs aren't sustainable and will survive only as long as government intervention allows. These biofuels strain

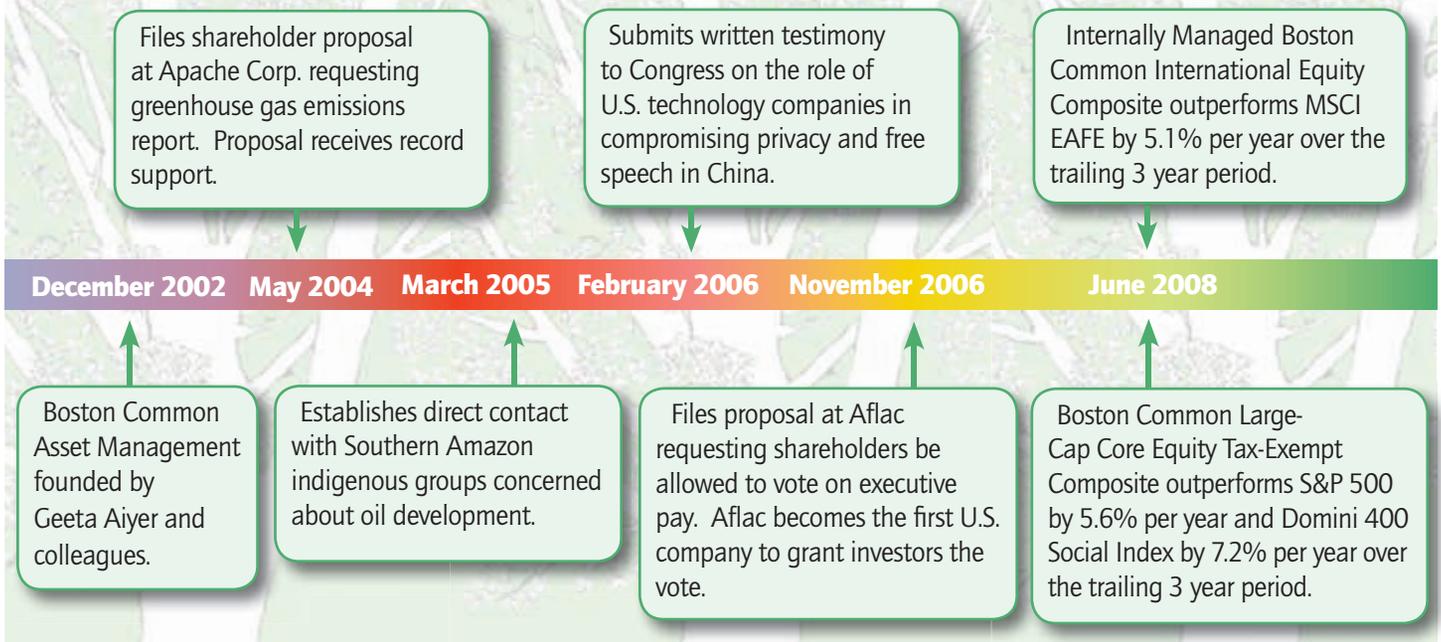
land availability and require large energy inputs, leading to rising input costs and adverse environmental impacts. Brazil's ethanol industry provides us with a glimpse of a viable biofuels program, but with some environmental drawbacks. Advances in next-generation feedstocks such as cellulosic biomass and micro-algae provides further support that biofuels will play a role in our energy future. If nothing else, the case of Pacific Ethanol reminds us that patience and an understanding of the complex factors underlying biofuels development will serve us particularly well when evaluating these new opportunities.

■ *Nathan Foley-Mendelsohn, CFA, conducts investment research in the Energy and Consumer Staples sectors. He holds a BA, with honors, in History and International Relations from Harvard University.*

However, in the U.S. there is currently no regulatory system that adequately protects us from unsafe ingredients increasingly used in Chinese exports. Our labeling laws are currently insufficient, and do not require imported ingredients to be listed. Stonyfield Farms, for example, reported in *Business Week* in October 2006 that it imports fruit from China for its yogurt. Stonyfield labels make no mention of it. The role for consumers here is to contact their representatives in Congress to push for stricter labeling. The organics industry is already calling for strengthened labeling and we need to support their efforts.

■ *Heather White is founder of Verité and more recently of New Standards Research, which provides high quality ESG (environmental, social and governance) risk evaluation of Asian public companies and global firms operating in the region.*

Boston Common Asset Management Milestones



Boston Common's Tax-Exempt U.S. Large-Cap Core Equity SRI Composite includes all discretionary, fee-paying, tax-exempt accounts managed by Boston Common Asset Management in its U.S. Large-Cap Core Equity strategy. The Standard & Poor's 500 Index is a broad market capitalization weighted average of U.S. companies. KLD's Domini 400 Social Index is a widely used benchmark for measuring the impact of social screening on financial returns and the performance of socially screened portfolios. It is a float-adjusted market capitalization weighted common stock index modeled on the S&P 500. Boston Common's International Equity SRI Composite includes all discretionary, fee-paying accounts managed by Boston Common Asset Management in its International Equity strategy. The Morgan Stanley Capital International Europe, Australia, and the Far East Index (MSCI EAFE) is a capitalization-weighted index of the largest publicly-traded, non-U.S. companies listed on the exchanges of developed-market countries. The index's returns are presented net of withholding taxes. Past performance does not guarantee future returns. Returns are gross of fees and annualized for the 3 year period ending 06/30/2008. All returns are presented in U.S. dollars net of withholding taxes with interest and dividends accrued. To receive full disclosures or a complete list of the firm's composite, contact Alex Jovanovic at 617-960-3910.

About Boston Common

Boston Common is an employee-owned investment firm dedicated to the pursuit of financial return and social change. We seek sustainable, long-term capital appreciation by investing in diversified portfolios of profitable, attractively valued, socially responsible enterprises. We then encourage them to further improve the social profile of their operations. As of 9/30/2008, Boston

Common managed approximately \$900 million in assets, including subadvised accounts. We offer U.S. core- or value-oriented equity and balanced accounts, as well as international and small cap options. Boston Common works to advance our clients' social missions globally through independent research and effective shareholder advocacy. We use our leverage as shareholders to influence corporate practices, often in collaboration with activist organizations and coalitions of shareholders.



BOSTON COMMON
ASSET MANAGEMENT, LLC
 84 State Street, Suite 1000
 Boston, MA 02109

Tel (617) 720-5557 Fax (617) 720-5665
www.bostoncommonasset.com

PRESORTED
 FIRST CLASS
 U.S. POSTAGE
PAID
 BOSTON MA
 PERMIT No 331

