

Excess Corn: Why Industrial Food Corporations are Benefitting at Our Expense

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I. Introduction

If we are what we eat, then there is no question that we are corn. Of the 45,000 items typically carried in a supermarket, over one-quarter of these items are made from corn.¹ The story of how this one plant has evolved from one of the many items produced on a farm, to the only item, is based in scientific development, corporate involvement and a great deal of government subsidies. Corn now feeds the cows that produce beef, milk and dairy products, the chickens that produce eggs and even the fish that are raised on fish farms. In the process of switching from farming which relies on a sun-driven process of fertility, to an industrial process based on fossil fuels which delivers excess amounts of corn to the market, we have managed to destroy our health and environment, in addition to the quality of life of the billions of animals who live short, miserable lives in industrial farming facilities. Furthermore, by implementing a governmental subsidy program intended to keep corn production high, and prices low, we are hurting the farmers these programs were designed to support in the first place. This paper will discuss how our dependence on corn came to be and the many problems it causes, from the ethanol that feeds our cars, to the beef that feeds our families.

II. A Brief History

A. From the American Farm to the Feedlot

In the 1920s, the typical American farm consisted of varying species of plants and animals, each relying on the other to generate and conserve fertility.² The first transition to industrial farming came when the tractor was invented, and the horses which had pulled the plows were put out of work.³ However, the key turning point came after the war in 1947 when a munitions plant in Alabama began making fertilizer out of left over Ammonium Nitrate, a key ingredient in making explosives, which also happens to be an excellent source of Nitrogen for plants.⁴ All living things require Nitrogen to survive, but in order to be useable, the Nitrogen must be “fixed” (i.e., the Nitrogen atoms must be joined with Hydrogen).⁵ Once humankind acquired the power to fix Nitrogen for plants through the use of synthetic fertilizers, the basis of soil fertility changed from a reliance on the sun and animals, to a reliance on fossil fuels.⁶ Once the animals were no longer needed on the farms, farmland became more abundant and the high profitability of corn (due to government subsidy programs) caused more and more farmers to dedicate their land to growing only corn. This boom in corn production helped drive the corn prices down, and beginning in the 1950s, this flood of cheap corn made it more profitable to fatten livestock on feedlots instead of grass and to raise chickens in factories instead of on farmland.⁷ In addition, these government subsidy programs, which were created to support farmers who grew corn, caused an excess of corn to be dumped on the marketplace, requiring the invention of new and innovative ways to use this corn, often at the expense of our health and environment, and usually with no benefit to the farmers these programs were intended to support.

B. A History of U.S. Farm Subsidies

After the Great Depression, which involved large grain surpluses, farm failures and widespread hunger, the Roosevelt administration enacted a mandatory system of quotas and price support for corn, cotton and wheat under the Agricultural Adjustment Act of 1938.⁸ This Act was upheld in *Wickard v. Filburn* and became the “default legislation” if future price support systems ever ended without replacement legislation.⁹ These programs were designed to support both farmers and consumers by paying farmers to leave land fallow when overproduction caused prices to fall (in order to increase prices the following season), and by ceasing payments when prices threatened to go too high.¹⁰ Earl Butz considered this type of control to be socialism, and when Nixon appointed him as secretary of the USDA in 1971, he began to dismantle this program by encouraging corn farmers in the mid-west to produce as much corn as possible with the promise of selling any excess overseas.¹¹ He sold a large quantity of grain to the Soviets in 1972 causing U.S. grain prices to soar and farmers to plant as much corn as they could to take advantage of the higher prices.¹² By the 1980s, farms were producing more corn than the market could stand and prices began to fall. Meanwhile, interest rates spiked and many farms, burdened by the loans they had taken out in the 1970s to expand their farming operations, went under.¹³ The surviving farms planted more corn, trying to make up for the low prices by increasing volume, and thus Butz’s “fencerow to fencerow” vision took hold of the U.S. agricultural system, where it still remains today.¹⁴ With his 1973 Farm Bill, Butz turned the “New Deal” control system into a system that gave direct payments to farmers and encouraged them to sell their corn at any price since the government would make up the difference. However, every Farm Bill since has lowered the target price and now only makes up *some* of the

difference to farmers, reflecting the interests of big buyers of grain who have been involved with the shaping of Farm Bills since the beginning of the 1980s.¹⁵

Today, Federal payments account for nearly half the income of the average Iowa corn farmer, and represents roughly a quarter of the \$19 billion U.S. taxpayers spend each year on payments to farmers.¹⁶ This system is designed to keep production high and prices low as farmers continue to produce corn in order to receive their subsidies, causing the supply to far outreach the demand, driving the prices of corn even lower, yet still encouraging farmers to produce more.¹⁷ What is even more concerning is that these subsidy payments are making their way into the wrong hands. The Washington Post conducted a nine month investigation during which they discovered that the federal government had paid at least \$1.3 billion in subsidies to individuals who did not do any farming at all, simply because they own land that was once farmland.¹⁸ So what do we do with this enormous amount of excess corn being produced each year? Corn items have been used in everything from the coating of wax that makes our vegetables and magazines shiny, to the animal feed that fattens the animals we eat (even the farm-bred Salmon that we have designed to eat corn, despite their naturally carnivorous nature), to the ethanol that helps run our cars.¹⁹

III. Corn in Our Cars: Ethanol

As of December 2007, there were 134 ethanol plants in the U.S., with a total capacity of more than seven billion gallons per year and this capacity expected to exceed thirteen billion gallons per year after current construction and expansion projects are completed.²⁰ This growth is a result of the subsidies and regulations at both the state and federal levels that are aimed at promoting ethanol use, especially corn ethanol. The biggest way in which

the government supports ethanol production is through tax incentives, namely the Volumetric Ethanol Excise Tax Credit, which is a federal subsidy for ethanol used in gasoline.²¹ In addition, the Small Ethanol Producer Tax Credit is an incentive program providing tax credit for producers with a production capacity of up to sixty million gallons annually.²² The Omnibus Reconciliation Tax Act (establishing a tariff on imported ethanol), the Energy Security Act's insured loans for small ethanol producers (covering up to 90% of construction costs on ethanol plants) and other Federal grant and loan programs, together with the various state level incentive programs, have given a huge boost to the ethanol industry.²³ Furthermore, the Energy Policy Act of 2005 has ensured the future demand for ethanol by requiring a minimum of 7.5 billion gallons to be purchased by 2012.²⁴

If ethanol is a "clean-burning, high-octane motor fuel that is produced from renewable sources" and is "domestically produced . . . help[ing] reduce America's dependence upon foreign sources of energy," what could be the problem with adding ethanol to our gasoline?²⁵ Ethanol is believed to reduce greenhouse gases in our atmosphere as compared to gasoline because the CO₂ emitted when ethanol burns is canceled out by the next crop which absorbs the CO₂ through photosynthesis.²⁶ However, studies have shown that not all the CO₂ is counterbalanced by the next corn crop, and since ethanol contains only seventy percent of gasoline's energy, we actually reduce greenhouse emissions by only twenty percent when we substitute one liter of ethanol for one liter of gasoline.²⁷ Furthermore, these studies mostly focus on greenhouse gas emissions but ignore other environmental impacts such as "resource depletion, ozone depletion, acidification, human and ecological health, and smog formation."²⁸ Greenhouse gases aside, several scholars actually believe the use of ethanol in our gasoline is no better than using

gasoline alone, and might actually be worse for the environment. Studies have revealed potential greater human health impacts due to increased numbers of other air pollutants like nitrogen oxides, while other studies have shown that ethanol might even increase smog formation.²⁹ Furthermore, these studies do not take into account other environmental impacts from corn farming such as soil erosion and the use of pesticides and fertilizers, which contribute to both water and air pollution, plus the increased strain on our water resources from supplying the large quantities of water ethanol plants require.³⁰

Instead of using corn for ethanol production, experts recommend using “cellulosic ethanol” which is obtained from plants such as switchgrass or sugarcane or from agricultural and forestry waste such as woodchips.³¹ These cellulosic species are superior because they do not require annual re-plowing and planting, instead a single planting will continue growing and producing for years while trapping more carbon in the soil.³² Soil studies reveal that while conventional corn farming can release thirty to fifty percent of the carbon in the soil, cellulosic ethanol production will *increase* soil carbon levels between thirty and fifty percent.³³

IV. Corn in Our Food

A. The Problem Of Corn-fed Cattle

Americans eat nearly sixty-three pounds of beef per person each year.³⁴ The majority of the beef we eat comes from cattle fattened on grain (usually corn), in fact, nearly seventy-five percent of U.S. beef comes from grain-fed cattle raised on feedlots.³⁵ Cows, grass-eaters by nature, have been forced to live on corn simply because calories are calories, and due to the large amount of excess corn in the U.S., corn calories are the cheapest calories available. In other words, the species has been bred to survive on a

feedlot. However, corn-fed beef is far less healthy for us than grass-fed, as corn-fed beef is higher in saturated fat and lower in healthy omega-3 fatty acids, leading researchers to believe that today's health problems caused by eating beef are actually due to eating corn-fed beef.³⁶ Furthermore, forcing an animal to eat a diet that it is not genetically designed to eat can cause problems for the animals as well. A concentrated diet of corn can cause a cow to bloat (diets containing too much starch cause the animal's rumen to inflate, which can cause death if not remedied in time), get acidosis (corn makes a cow's normally neutral pH balance acidic, which can leave them sick and susceptible to many other feedlot diseases, or even cause death), and other health problems.³⁷ Giving animals antibiotics is the method by which they are kept healthy enough to survive on the feedlot, in fact, an estimated seventy percent of all antibiotics sold (more than twenty-four million pounds every year) end up in animal feed.³⁸ This leads to plenty of other problems, including a high tolerance to antibiotics and antibiotic resistant superbugs, such as Escherichia Coli, a relatively new strain of intestinal bacteria that is found in Concentrated Animal Feedlot Operation ("CAFO") cattle (forty percent are infected).³⁹ Ingesting just ten of these microbes is enough to cause a fatal infection that destroys human kidneys, however, the high acidity of the human stomach kills these microbes that find their way into our food.⁴⁰ The problem is that due to the cattle's corn diet, their stomach acidity is almost as high as our own, causing a breakdown in one of our food chain's most important barriers against infection.⁴¹ The Food and Drug Administration estimates that seventy percent of all infection-causing bacteria have become resistant to one or more of the drugs most commonly used to treat infections.⁴² Furthermore, Bacteria share DNA with other organisms with which they come in contact with, so an antibiotic-resistant gene can transfer from one type of bacteria to

another causing that bacteria cell to become resistant to numerous antibiotics at once.⁴³ The poultry industry, which is generally contained in dusty spaces, crowded with many birds and heavy antibiotic use, is a haven for the emergence and spread of these “multiantibiotic-resistant bacteria.”⁴⁴

No discussion of CAFO animals would be complete without a brief mention of the abuses these factory animals endure. Nothing is a clearer example of the harsh lives these animals live than the life of a pig raised in a CAFO. Piglets are normally weaned from their mothers at thirteen weeks, however, in CAFOs they are weaned ten days after birth because they gain weight faster on drug-fortified feed than on milk.⁴⁵ This premature weaning leaves these animals with a lifelong urge to suck and chew, and in the tight confines of a CAFO, they usually end up chewing the pig’s tail in front of them.⁴⁶ Normally a pig would try to fight off such an offense, however, pigs (rather intelligent animals) who live in CAFOs are depressed and “learn helplessness,” allowing their tails to be chewed to the point of infection.⁴⁷ Clearly a pig with an infection is a problem to the farmer, so these underperforming animals are generally clubbed to death on the spot since treating a sick pig would be too costly.⁴⁸ To combat this problem, the USDA recommends the tail be removed, not to stop the biting, but to make it sensitive enough that the pig will struggle to resist it.⁴⁹ Does the farmer use anesthesia when removing the tail? No, because presumably this would cost money that the farmer would rather not spend.

B. The Problem Of Corn-Fed People

After corn’s introduction to the technology and convenience of the twentieth-century, the majority of the corn we ingest each year comes in the form of heavily processed foods such as cereal, snacks and soft drinks.

Read the ingredients on the label of any processed food and, provided you know the chemical names it travels under, corn is what you will find. For modified and unmodified starch, for glucose syrup and maltodextrin, for crystalline fructose and ascorbic acid, for lecithin and dextrose, lactic acid and lysine, for maltose and HFCS, for MSG and polyols, for the caramel color and xantham gum, read: corn.⁵⁰

The increase in processed food is mostly driven by the American food industry's desire to increase their rate of growth, and this requires them to either entice us to pay more for our food or eat more of it.⁵¹ The problem is that by processing food and therefore "adding value" to it, the Wall Street corporations are capturing the majority of the profits these corn based food items bring in, to the detriment of the farmers growing the corn. In fact, of every dollar a consumer spends on a whole food such as eggs, forty cents is received by the farmer, however, the farmer will only see four cents of every dollar spent on corn sweeteners, while companies like Coca-Cola and General Mills receive the rest.⁵² Turning corn into processed foods is not just a problem for farmers, it is also a major problem for the American public who is facing an obesity epidemic along with other related diseases such as Type II diabetes (originally called "adult-onset" diabetes but later changed due to the frequent occurrence in children). The rising rates of obesity are frequently traced back to the 1970s which happens to be when the "cheap-food farm policy" was put into place.⁵³ Corn is the main source of the surplus calories we're ingesting, most notably in the form of high fructose corn syrup, which is what we're making out of about 530 million bushels of the annual corn harvest.⁵⁴ "Since 1985, an American's annual consumption of [high fructose corn syrup] has gone from forty-five pounds to sixty-five pounds ... during the same period our consumption of refined sugar [which is what high fructose corn syrup was designed to replace] actually went up by five pounds."⁵⁵

If all these items are derived from corn, and corn is a naturally grown, whole food, what could be wrong with consuming them? Processed food does not just come in the form of a Chicken McNugget at McDonalds, if it comes in a box, can, bag or carton, it is a processed food. These foods are the cheapest and most convenient, however, they also tend to be high in saturated fats, sugar and salt, which according to several studies are a significant cause of heart disease, cancer, diabetes, obesity, osteoporosis and dental disease.⁵⁶ A University of Hawaii study which followed 200,000 men and women for seven years found that consuming processed meats increases the risk of pancreatic cancer by 67%.⁵⁷ Nearly all processed meats are made with sodium nitrate, a color fixer that makes foods look more visually appealing.⁵⁸ However, sodium nitrate is a precursor to highly carcinogenic nitrosamines, a chemical that accelerates the formation and growth of cancer cells in the body.⁵⁹ In fact, the USDA tried to ban its use in the 1970s but was preempted by the meat processing industry.⁶⁰ In addition, studies have shown that there is a link between breast cancer and the consumption of refined carbohydrates, including items containing High Fructose Corn Syrup (soft drinks, sugary cereals) and white flour products (cookies, breads).⁶¹ A link has also been established between dietary patterns and prostate cancer. A study conducted by the Division of Cancer Care and Epidemiology at Queen's University in Ontario, Canada discovered that a diet which was comprised of processed foods such as refined grain products, processed and red meats, white bread and soft drinks contributed to an increased risk of prostate cancer.⁶²

What about diseases other than cancer? The World Health Organization found that children who ate processed foods at restaurants ate 126 more calories per day than children who did not, which could translate into thirteen pounds of weight gain from fast

food in a year.⁶³ When you consider that one in three American children eats fast food every single day, it's not hard to see why obesity is becoming an epidemic.⁶⁴ Processed foods contain trans-fatty acids which raises cholesterol levels and can lead to heart disease, while the high levels of salt in processed foods further increases the risk.⁶⁵ Tim Lang, professor of food policy at the City University in London has said that "the single fastest way to reduce strokes in this country is to halve the amount of salt that is added to processed food."⁶⁶

V. The Effect of Industrial Food Systems on our Environment

The industrial food system is causing problems to the environment as well as to our health. By moving animals off the farms and into CAFOs, we have taken a "closed ecological loop" and divided it into two new problems: "a fertility problem on the farm (which must be remedied with chemical fertilizers) and a pollution problem on the feedlot (which seldom is remedied at all)."⁶⁷

CAFOs are large facilities at which thousands, and sometimes millions, of animals are grown in close confines. These meat-producing facilities pollute water in two ways: 1) by spreading excessive manure on fields, and 2) by spills or failure of the lagoons which store these wastes, both of which end up in our ground water.⁶⁸ Since animal manure is generally costly to transport and has low economic value, it is often spread on farm fields located close to the CAFO from which it came, often in doses that greatly exceed what the plants can absorb. This leads to run-off which ends up in our waterways where the build-up of nutrients can create a hypoxic zone, an area so starved of oxygen that aquatic life can no longer thrive. A related issue is the excessive amount of synthetic fertilizer used on the corn fields themselves. Some of the excess evaporates into the air where it acidifies the rain

and contributes to global warming, some of it seeps down the water table and the rest is washed off of the fields into drainage ditches where it flows into our rivers and eventually out to the ocean.⁶⁹ If you follow the fertilizer run-off down the Mississippi river into the Gulf of Mexico, you will find an eight-thousand-square-mile area so starved of oxygen that only algae can live in it.⁷⁰ This does not just pose a threat to fish and other aquatic life, this also concerns the safety of our drinking water. “One-third of drinking water wells in Maryland, which has many large poultry CAFOs, exceed safe levels for nitrates, a component of manure.”⁷¹ There are also air pollution issues, as the decomposition of manure creates hydrogen sulfide and ammonia gases, not to mention the obvious odor issues as well.⁷²

Although CAFOs have been regulated through the Clean Water Act (CWA) since the 1970s, the EPA paid little attention to them until the 1990s when CAFOs got larger and more common.⁷³ In response to the *Waterkeeper Alliance v. EPA* decision, the EPA requires CAFOs to seek a permit only if it actually discharges or proposes to discharge manure, and requires nutrient management plans be incorporated into permits.⁷⁴ The air pollution issue is given far less attention due to the difficulty in measuring emissions from CAFOs. In 2005 the EPA offered a settlement under the Clean Air Act: a promise not to sue in exchange for small monetary penalties.⁷⁵

VI. Conclusion

If we are to move in a direction that supports healthy eating habits and higher quality of food, not to mention better lives for animals and proper support systems for farmers, we must re-think our agricultural system. There must be a system in place that does not cater to large corporations who encourage rules that exist solely to increase their

profits. The health of our nation, which is facing a major increase in the numbers of auto-immune disorders, heart problems and cancer, and the health of our environment are at stake. The system should reward and support farmers who put in the effort to use alternative farming methods designed to replicate natural ecosystems and therefore have no need for synthetic fertilizers or antibiotics to keep their plants and animals healthy. Although these systems are considered “less efficient” by industrial farming standards, if the rise in farm co-ops and farmers markets are any indication, people are ready to support farmers who practice earth and animal-friendly farming. Furthermore, it is safe to assume that people would rather the farmer receive the profit for growing natural foods, instead of a corporation who adds unnatural ingredients to food, thus rendering them less healthy, and pocketing the additional profits. If we were to level the playing field amongst farmers by removing the regulations and subsidies, and if we factor in the costs we are bearing as a society from industrial farming in the form of water pollution and health care for food-borne illnesses and antibiotic resistance, we would see that the price difference between healthy food and processed food would actually be less than anticipated. So why do we as a society tolerate the incentives awarded to large corporations who, in essence, are getting paid to make our food unhealthy? Hopefully the answer to that question will be that we are no longer willing.

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- ¹ MICHAEL POLLAN, *THE OMNIVORE'S DILEMMA: A NATURAL HISTORY OF FOUR MEALS*, 19 (Penguin Books 2006).
- ² *Id.* at 38, 44-45.
- ³ *Id.* at 38.
- ⁴ *Id.* at 41.
- ⁵ *Id.* at 42.
- ⁶ *Id.* (explaining how planted legumes gave fertility to the corn plants by fixing the Nitrogen on their roots, corn fed the livestock and the livestock fed the corn plants through their manure); *Id.* at 45 (“When you add together the natural gas in the fertilizer to the fossil fuels it takes to make pesticides, drive the tractors, and harvest, dry, and transport the corn, you find that every bushel of industrial corn requires the equivalent of between a quarter and a third of a gallon of oil to grow it – or around fifty gallons of oil per acre of corn.”).
- ⁷ *Id.* at 39.
- ⁸ POLLAN, *supra* note 1, at 39.
- ⁹ *Id.*
- ¹⁰ Tom Philpott, *The Butz Stops Here: A Reflection on the Lasting Legacy of 1970s USDA Secretary Earl Butz*, <http://www.grist.org/article/the-butz-stops-here/> (last visited Apr. 5, 2009).
- ¹¹ *Id.*
- ¹² *Id.*
- ¹³ *Id.*
- ¹⁴ *Id.*
- ¹⁵ POLLAN, *supra* note 1, at 52.
- ¹⁶ *Id.* at 61.
- ¹⁷ *Id.* at 62.
- ¹⁸ Dan Morgan, Gilbert M. Gaul and Sarah Cohen, *Farm Program Pays \$1.3 Billion to People Who Don't Farm*, *THE WASHINGTON POST*, Jul. 2, 2006, <http://www.washingtonpost.com/wp-dyn/content/article/2006/07/01/AR2006070100962.html?referrer=emailarticle>.
- ¹⁹ POLLAN, *supra* note 1, at 19.
- ²⁰ *See* Renewable Fuels Association, *U.S. Fuel Ethanol Industry Biorefineries and Production Capacity*, <http://www.ethanolrfa.org/industry/locations/> (last visited Mar. 17, 2009).
- ²¹ Robert W. Hahn, *Ethanol: Law, Economics, and Politics*, 19 *Stan. L. & Pol'y Rev.* 434, 437 (2008).
- ²² *Id.* at 440.
- ²³ *Id.* at 440-442.
- ²⁴ *Id.* at 441.
- ²⁵ American Coalition for Ethanol, *What is Ethanol*, <http://www.ethanol.org/index.php?id=34&parentid=8#benefits> (last visited Mar. 18, 2009).
- ²⁶ Environmental News Network, *Study Critiques Corn-For-Ethanol's Carbon Footprint*, Mar. 3, 2009, <http://www.enn.com/agriculture/article/39403>.
- ²⁷ *Id.*

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- ²⁸ HAHN, *supra* note 21, at 447.
- ²⁹ See Ben Hancock, EMFAC Modeling Change Technical Memo: Correction Factor for Increased Evaporative Emissions Due to Ethanol Replacement in Oxygenated Gasoline 1-4 (2004), available at www.arb.ca.gov/fuels/gasoline/meeting/2005/030105etohapp.pdf;
HAHN, *supra* note 21, at 447-448.
- ³⁰ HAHN, *supra* note 21, at 448.
- ³¹ Environmental News Network, *Study Critiques Corn-For-Ethanol's Carbon Footprint*, Mar. 3, 2009, <http://www.enn.com/agriculture/article/39403>.
- ³² *Id.*
- ³³ *Id.*
- ³⁴ Aliza Green, *How to Buy the Best Beef*, COOKING LIGHT, January/February 2009, at 36.
- ³⁵ *Id.* at 38.
- ³⁶ ENN, *supra* note 31, at 75.
- ³⁷ *Id.* at 78.
- ³⁸ Mary C. Pearl, *Perdue Too Chicken to Quit Antibiotics Cold Turkey*, DISCOVER, Sept. 12, 2007, <http://discovermagazine.com/2007/sep/better-planet>.
- ³⁹ POLLAN, *supra* note 1, at 81.
- ⁴⁰ *Id.* at 82.
- ⁴¹ *Id.*
- ⁴² PEARL, *supra* note 38.
- ⁴³ *Id.*
- ⁴⁴ *Id.*
- ⁴⁵ POLLAN, *supra* note 1, at 218.
- ⁴⁶ *Id.*
- ⁴⁷ *Id.*
- ⁴⁸ *Id.*
- ⁴⁹ *Id.*
- ⁵⁰ *Id.* at 18-19.
- ⁵¹ *Id.* at 95.
- ⁵² POLLAN, *supra* note 1, at 95.
- ⁵³ *Id.*
- ⁵⁴ *Id.*
- ⁵⁵ *Id.* at 104.
- ⁵⁶ BBC News, *Eat Less Processed Food, Say Experts*, Mar. 3, 2003, <http://news.bbc.co.uk/2/hi/health/2814253.stm>.
- ⁵⁷ Mike Adams, *Processed Meat Consumption Results in 67% Increase in Pancreatic Cancer Risk, Says New Research*, NATURAL NEWS, Apr. 20, 2005, <http://www.naturalnews.com/007024.html>.
- ⁵⁸ *Id.*
- ⁵⁹ *Id.*
- ⁶⁰ *Id.*
- ⁶¹ Mike Adams, *New Research Shows Cancer Caused by Carbohydrates, Sugars, White Flour, and Corn Syrup*, NATURAL NEWS, Aug. 8, 2004, <http://www.naturalnews.com/001812.html>

(explaining that women who received 57% or more of their energy intake from refined carbohydrates had a 220% higher risk of getting breast cancer).

⁶² Pubmed.org, U.S. National Library of Medicine, <http://www.ncbi.nlm.nih.gov/pubmed/15825170?dopt=Abstract> (last visited Apr. 12, 2009).

⁶³ Sixwise.com, *All the Health Risks of Processed Foods – In Just a Few Quick, Convenient Bites*, <http://www.sixwise.com/newsletters/05/10/19/all-the-health-risks-of-processed-foods---in-just-a-few-quick-convenient-bites.htm> (last visited Apr. 12, 2009).

⁶⁴ POLLAN, *supra* note 1, at 109.

⁶⁵ Sixwise.com, *supra* note 63.

⁶⁶ *Id.*

⁶⁷ POLLAN, *supra* note 1, at 68.

⁶⁸ Paul Stokstad, *Enforcing Environmental Law in an Unequal Market: The Case of Concentrated Animal Feeding Operations*, 15 Mo. Envtl. L. & Pol'y Rev. 229, 231 (2008).

⁶⁹ POLLAN, *supra* note 1, at 47.

⁷⁰ *Id.* at 83.

⁷¹ STOKSTAD, *supra* note 68, at 239.

⁷² *Id.* at 241.

⁷³ *Id.* at 244.

⁷⁴ *Id.* at 243-244 (holding that the terms of nutrient management plans must be incorporated into permits, that the public was entitled to participate in the development and enforcement of the plans, and that permitting authorities were entitled to review the plans.)

⁷⁵ *Id.* at 245.