

A Rotten System: Subsidizing Environmental Degradation and Poor Public Health with Our Nation's Tax Dollars

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I. HOW DID WE GET HERE? HISTORY OF THE U.S. FARM BILL	216
II. THE FAILURES OF FARM BILL CONSERVATION PROGRAMS.....	240
III. THE ENVIRONMENTAL IMPACTS OF SUBSIDIZED COMMERCIAL AGRICULTURE	251
A. The Effects of Commodity Agriculture on Our Nation's Water	252
B. The Effects of Commodity Agriculture on America's Land and Soil	261
C. The Effects of Commodity Agriculture on Our Nation's Biodiversity and Wildlife Habitat	263
D. The Effects of Commodity Agriculture on Our Nation's Air Quality	266
E. How Climate Change Will Further Strain These Already Degraded Natural Resources	268
IV. THE FAILURES OF FARM BILL NUTRITION PROGRAMS	273

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214	<i>STANFORD ENVIRONMENTAL LAW JOURNAL</i>	Vol. 28:213
V.	THE PUBLIC HEALTH IMPACTS OF SUBSIDIZED COMMERCIAL AGRICULTURE	275
A.	The Effects of Commodity Agriculture on Exposure to Toxins.....	276
B.	The Effects of Commodity Agriculture on American Food Choice and Availability.....	279
C.	The Effects of Commodity Agriculture on Obesity.....	283
D.	The Effects of Commodity Agriculture on Obesity-Related Illnesses	289
E.	The Effects of Commodity Agriculture on Domestic Hunger and Malnutrition	293
VI.	TOWARDS A MORE JUST AGRICULTURAL POLICY: SUBSIDIZING SUSTAINABLE AGRICULTURE.....	295
A.	Sustainable Agriculture Already Exists on a Small Scale	300
B.	Expected Success of Scaling Up Sustainable Agriculture with Farm Bill Subsidies	304
VII.	CONCLUSION.....	309

INTRODUCTION

The following Article aims to inform the public and policymakers about the single most important statute affecting the United States today. Specifically, this legislation has the most significant environmental impact of any statute enacted by Congress. No, this Article does not focus on the Clean Air Act, the Clean Water Act, the National Environmental Policy Act, the Endangered Species Act, or any of the myriad environmental protection statutes enacted in the early 1970s in response to alarming destruction of the natural environment and the interrelated effects of that destruction on public health. Rather, this Article focuses on a piece of legislation that affects *all* aspects of the natural environment, not just one specialized facet like the statutes listed above. In addition to this statute's impacts on the environment, this legislative enactment has far-reaching implications for the most salient issues facing our nation today. The statute drives public health policy in the United States and is a predominant reason that our nation suffers from record levels of obesity, heart disease, diabetes, and asthma. At the same time, this statute implements policies that result in severe malnutrition and

hunger both domestically and abroad. Additionally, this legislation encourages overproduction, trade distortion, and depression of world market prices, which directly and immediately drives immigration towards the United States from the developing world. Lastly, this statute strips rural communities of their senses of identity, cultural values, and traditional heritage. For all of these reasons, it is time to inform the public about this statute so that a newfound awareness can lead to much-needed reform of the current policy system.

Most people will be surprised to learn that the statute referenced above is the United States Farm Bill. How can something called the “Farm Bill” affect all of the sectors of society mentioned above? This question demonstrates one of the inherent problems with attempting to resolve the difficult conflicts created by the Farm Bill: the statute is much more than a mere bill for farmers, and its deceptive name prevents the public from recognizing its true costs and implications. Writer Michael Pollan argues that Farm Bill reform must start “with the recognition that the ‘farm bill’ is a misnomer; in truth, it is a food bill [among other things] and so needs to be rewritten with the interests of [the public] placed first.”¹ Thus, the time is now to once again summon the courage demonstrated by environmentalist Rachel Carson in the 1960s and apply her message to the new cause of reforming our nation’s Farm Bill:

We urgently need an end to these false assurances, to the sugar-coating of unpalatable facts. It is the public that is being asked to assume the risks. . . . The public must decide whether it wishes to continue on the present road, and it can do so only when in full possession of the facts.²

In order to gather the full possession of facts with regard to the Farm Bill, this Article seeks to provide comprehensive information regarding the Farm Bill’s effects on American society.

1. Michael Pollan, *You Are What You Grow*, N.Y. TIMES MAG., Apr. 22, 2007, available at http://www.nytimes.com/2007/04/22/magazine/22wwlnlede.t.html?pagewanted=1&_r=1 [hereinafter Pollan, *You Are What You Grow*].

2. RACHEL CARSON, *SILENT SPRING* 13 (Mariner Books 2002) (1962).

Part I of this Article analyzes the history of the Farm Bill and generally discusses the far-reaching impacts of the Farm Bill in its current form. Part II highlights past and current attempts to implement on-farm conservation measures in the Farm Bill and explores the respective failures of such programs. Part III scrutinizes the vast off-farm environmental degradation caused by the Farm Bill's insistence on an industrialized agricultural system. Part IV examines the Farm Bill's attempts to create nutrition programs and exposes the failures of such programs to date. Part V focuses on the public health consequences of the Farm Bill's commodity subsidy system and illustrates the substantial health costs that our nation pays because of poor agricultural policies. Part VI re-centers the discussion on Farm Bill reform by proposing an innovative policy solution that can single-handedly solve many of the problems identified in the preceding Parts.

I. HOW DID WE GET HERE? HISTORY OF THE U.S. FARM BILL

The United States has a rich agricultural history that still influences the public's perception of domestic agriculture in the twenty-first century. Soon after our nation declared independence from England in 1776, Thomas Jefferson and other political leaders encouraged a "national agrarian identity."³ Jefferson envisioned the United States as a democracy comprised of yeomen farmers whose impeccable virtues would propel the young nation to stability.⁴ In fact, Jefferson stated in a letter to U.S. Secretary of Foreign Affairs John Jay,

Cultivators of the earth are the most valuable citizens. They are the most vigorous, the most independent, the most virtuous, and they are tied to their country and wedded to its liberty and interests by the most lasting bonds. As long, therefore, as they can find employment in this line, I would not convert them into mariners, artisans, or anything else.⁵

3. DENNIS KEENEY, INST. FOR AGRIC. & TRADE POL'Y & LONI KEMP, THE MINNESOTA PROJECT, A NEW AGRICULTURAL POLICY FOR THE UNITED STATES 6 (2003), <http://www.mnproject.org/pub-sustainableag.html>.

4. *See id.*

5. Letter from Thomas Jefferson, U.S. Minister to France, to John Jay, U.S. Sec'y of Foreign Aff. (Aug. 23, 1785), *quoted at* <http://www.fireandknowledge.org/archives/2007/02/09/cultivators-of-the-earth-are-the-most-valuable-citizens-jefferson/>.

When Jefferson became president in 1801, 95% of the nation's population worked full-time in agriculture.⁶ Although this percentage has declined significantly over the past two centuries, Jeffersonian agrarianism left an indelible imprint on the United States and "remains to this day an important component of our national rural identity and is embedded in farm politics and policies."⁷

Despite federal policies such as the Homestead Act that aimed to sustain small-scale family agriculture, commercial agriculture began to expand significantly in the nineteenth century.⁸ This shift began early in the century with the invention and implementation of more efficient agricultural tools such as the cotton gin, the steel plow, the reaper, the grain drill, and the harvester.⁹ This shift continued after the Civil War as the South sought a new agricultural identity without the use of slave labor.¹⁰ As the scope of commercial crops expanded, the number of subsistence farmers began to decline quite rapidly.¹¹ Further, the increased commercialization of agriculture created a more complex economy both domestically and abroad, which tempted farmers to rely more heavily on capital, banking, mechanization, and soil inputs which had the potential to increase yields.¹² In hindsight, this commercialization of agriculture had two unintended consequences that still affect farm policy today: (1) control of the agricultural industry generally fell to either large processing companies that consolidated their markets through economic pressure, or to farmers with the most capital who could outcompete smaller farms, and (2) for the first time in our nation's history, the rural yeoman farmer idealized by Jefferson

6. DANIEL IMHOFF, *FOOD FIGHT: THE CITIZEN'S GUIDE TO A FOOD AND FARM BILL* 33 (2007).

7. KEENEY & KEMP, *supra* note 3, at 6.

8. *Id.* at 9-11.

9. Benedict A. Leerburger, *Agricultural Machines*, in *SCIENCE ENCYCLOPEDIA*, <http://science.jrank.org/pages/128/Agricultural-Machines.html>.

10. KEENEY & KEMP, *supra* note 3, at 6.

11. *Id.* at 6.

12. *Id.*

years earlier found it difficult to make a decent livelihood on the family's small farm.¹³

By the early decades of the twentieth century, the commercialization of agriculture coupled with the multitude of employment options in America's capitalist economy led to a decreased proportion of Americans in the agricultural sector. In just over a century, from 1801 to around 1910, the percentage of our nation's citizens that farmed full-time had dropped from 95% to only 45%.¹⁴ Within a few decades, however, those remaining farmers suffered severely from the Great Depression. During the early- to mid-1930s, nearly 40% of the nation's population, including a large portion of the farming population, was grinding out an impoverished subsistence as bank closures, home foreclosures, and economic downturn resulted in difficult times in the United States.¹⁵ At this point in time, one in four Americans still lived on a farm.¹⁶ Although poverty affected all sectors of society, scholars contend that the farming economy was the hardest-hit because of the convergence of bank foreclosures, drought, dust storms, and floods.¹⁷ These economic and meteorological woes were the visible culprits that led to the "farm crisis," but the underlying cause for the farm crisis escaped scrutiny because it was obscured from public view.

The farm crisis was "triggered not by too little food, but by too much."¹⁸ The nation's overzealous planting during the 1920s combined with innovative advances in both mechanization and soil inputs led to vast overproduction of most crops.¹⁹ This immense surplus benefited "distributors, processors, and monopolists who were increasingly dominating the food system," but seriously curtailed the profits of farmers as domestic and global crop prices

13. *See id.*

14. IMHOFF, *supra* note 6.

15. *Id.*

16. *Id.*

17. *Id.* at 33-34; *see also* PETER TEMIN, *LESSONS FROM THE GREAT DEPRESSION* 54-56 (1991) (explaining that "[f]armers suffered, while the rest of the [U.S.] economy gained. . . . [because] the prices of agricultural products and raw materials had [already] been falling in the 1920s . . . [and] [a]t about the same time as the stock-market crash, the prices of raw materials and agricultural goods . . . began to fall precipitously").

18. IMHOFF, *supra* note 6, at 34.

19. *Id.*

fell dramatically.²⁰ As the crop prices fell below their respective costs of production, farmers could no longer stay afloat: the total farm income dropped by two-thirds between 1929 and 1932, 60% of farms were mortgaged in hopes of surviving, and by 1933, the price of corn registered at zero and grain elevators refused to buy any surplus corn.²¹

Recognizing the importance of farmers in preserving our nation's food supply, the federal government acted quickly to enact a "farm bill" to temporarily protect small farms. This response to the farm crisis, called the Agricultural Adjustment Act of 1933,²² "emerged as one of the most ambitious social, cultural, and economic programs ever attempted by the U.S. government."²³ As part of President Franklin D. Roosevelt's New Deal agenda, the 1933 Farm Bill ambitiously sought to do many things: bring crop prices back to stability by weaning the nation from its affinity for agricultural overproduction, utilize surplus crops productively to combat widespread hunger and provide nutritional assistance to children in the form of school lunch programs, implement strategies to prevent further erosion and soil loss from poor land conservation policies and weather events, provide crop insurance and credit assurances for subsistence farmers, and build community infrastructure for rural farming towns.²⁴ In essence, the 1933 Farm Bill was designed to save small farming in America and it signaled a return to the Jeffersonian ideal of an agrarian democracy.

Despite the great potential of the initial Farm Bill, the dream of Jeffersonian agrarianism was quickly grounded as debate set in. However positive the goals espoused by President Roosevelt appeared, the Farm Bill's agricultural policies were controversial from the outset.²⁵ Farmers criticized using any surplus crops and livestock for hunger relief as "shameful charity" and "a threat to

20. *Id.*

21. *Id.*

22. Agricultural Adjustment Act of 1933, Pub. L. No. 73-10, 48 Stat. 31 (1933), available at <http://www.nationalaglawcenter.org/assets/farmbills/1933.pdf>.

23. IMHOFF, *supra* note 6, at 34.

24. *Id.* at 34-36.

25. *Id.* at 36.

free markets.”²⁶ Members of the malnourished public criticized government-induced “surplus dumping”—the literal elimination of crops on the domestic market by burning, dumping into rivers, or selling overseas;²⁷ in fact, polls showed that the public was “horrified with [the government’s] policy of forced scarcity,” which eliminated many critical food surpluses through “dumping” that could have fed hungry Americans.²⁸ Further, farmers and citizens alike claimed that the Farm Bill’s mandate to farm less than 25% of all cotton fields precluded both the manufacture of textile products that could have generated profits for cotton farmers in the domestic marketplace and the provision of clothing and blankets for those in need—ultimately leading to a U.S. Supreme Court decision that invalidated initial acreage quotas for cotton.²⁹

The controversial storm surrounding the first Farm Bill eventually calmed as the positive results of the bill were hailed as New Deal successes: crop prices gradually resorted to stable levels, the rising prices enabled many farming families to keep their farms out of foreclosure, nutritional school lunch programs were implemented to utilize surplus crops while simultaneously feeding America’s malnourished children, food price increases were negligible despite the surplus dumping, hunger was generally abated, and every government dollar spent on agricultural policy under the New Deal had a “seven-times multiplier effect” in the American economy that led to stimulation of all facets of the domestic marketplace.³⁰ Farmers, even those who had criticized the Farm Bill initially, were delighted when “[g]ross farm income increased by 50%” within three years of the Farm Bill’s

26. *Id.*

27. *Id.* (“[M]illions of young hogs purchased by the government to restrict supply (bump up prices) and feed the hungry never reached their intended beneficiaries. Instead they were slaughtered and dumped into the Missouri River. Likewise, millions of gallons of milk were poured into the streets rather than nourishing famished and distended bellies.”); ALAN BRINKLEY, *AMERICAN HISTORY: A SURVEY* 877 (10th ed. 1999) (noting that in 1933 alone, six million piglets and 220,000 pregnant cows were slaughtered in an effort by the government to raise prices).

28. BARRY CUSHMAN, *RETHINKING THE NEW DEAL COURT* 35 (1998) (noting that a Washington Post Gallup Poll revealed that a majority of the American public opposed the 1933 Farm Bill because of forced scarcity).

29. IMHOFF, *supra* note 6, at 36; BRINKLEY, *supra* note 27; *United States v. Butler*, 297 U.S. 1 (1936).

30. IMHOFF, *supra* note 6, at 35-36.

enactment.³¹ This increase, however, did not come without a price: most of the farm income increases were artificial market supports in the form of government subsidies.³² Focused solely on day-to-day survival after struggling through the Great Depression, small farmers—then still the backbone of the American agrarian system—failed to grasp the imminent and unintended consequences of the initial Farm Bill’s introduction of commodity subsidies. Although Farm Bill subsidies originally provided price supports for over one hundred crops,³³ rapid changes were on the horizon since the determination of which crops to subsidize fell into the hands of those with political and economic power. The decisions made by those in power have resulted in the gradual narrowing of commodity subsidies to a select handful of crops, distortion of the agricultural market by artificially supporting only these select crops, and the slow, painful death of small farming in the United States. This “death” has transformed rural America into a wasteland of large commercialized farms and abandoned fields that once served as symbols of hope to the families that depended on their plentiful yields.

Although well-intentioned at the outset, the Farm Bill’s subsidy program has gradually snowballed into a legislative package of subsidized commodities that increasingly benefits the largest of agricultural producers. Since the 1933 Farm Bill was enacted as a *temporary* fix to an emergency farm crisis, Congress is required to either pass a new Farm Bill every five to seven years when the previous bill expires or allow the bill to lapse into pre-Farm Bill agricultural policy whereby the market is not distorted by governmental subsidies.³⁴ Although the initial Farm Bill met its purpose of resolving the emergency farm crisis of the Great Depression, each Congress to date has chosen to pass an updated Farm Bill that reflects the salient agricultural issues at the time of enactment. Under one such successor to the 1933 Farm Bill, it became apparent that the bill’s “programs designed to save the

31. BRINKLEY, *supra* note 27, at 404.

32. *Id.*

33. IMHOFF, *supra* note 6, at 38.

34. Nat’l Agric. Law Ctr., Farm Bill Definitions, <http://www.nationalaglawcenter.org/assets/farmbills/glossary.html> (last visited Feb. 17, 2009) (illustrating that a new Farm Bill is passed every five to seven years by listing past farm bills by year).

family farm had the unintended consequence of lavishing the greatest benefits on the largest producers.”³⁵

By 1949, five million farms remained in the United States and these farms “were largely homogenous: similarly sized with a fair degree of surrounding habitat, raising a diversity of crops, including livestock (for meat, dairy, and fertilizer), honeybees (for pollination and honey), and other products.”³⁶ In fact, over one hundred unique crops received partial price supports in the way of federal subsidies, which gave farmers choices regarding what and how to cultivate.³⁷ This quickly changed, however, as both the Green Revolution³⁸ led to plant breeding and hybridization and military technology developed during World War II led to new pesticides, herbicides, and agricultural mechanization.³⁹ These modern advances increased yields consistently, which resulted in overproduction and depressed crop prices reminiscent of the farm crisis during the Great Depression.⁴⁰ Unlike the earlier farm crisis, however, the government did not swoop in to protect the small farmer. Instead, larger farms that had the ability to stay afloat despite decreased crop prices began to exploit the weaker, smaller farms by purchasing foreclosed farms at below-market rates and by joining forces with other large farms and food processors to create the first agribusiness lobby.⁴¹

35. KEENEY & KEMP, *supra* note 3, at 8.

36. IMHOFF, *supra* note 6, at 38.

37. *Id.*

38. In the early 1960s, the “Green Revolution” led to a tripling in grain yields (namely of the wheat, rice, and corn that prove to be the most heavily subsidized crops today) due to scientific advances in the field of crop hybridization. Although the crop yields increased substantially, many argue that the consequences for rural life were devastating; See Richard Manning, *The Oil We Eat*, HARPER’S, Feb. 2004, at 37, available at <http://www.harpers.org/archive/2004/02/0079915> (“The accepted term for this strange turn of events is the green revolution, though it would be more properly labeled the amber revolution, because it applied exclusively to grain—wheat, rice, and corn. Plant breeders tinkered with the architecture of these three grains so that they could be hypercharged with irrigation water and chemical fertilizers, especially nitrogen. This innovation meshed nicely with the increased ‘efficiency’ of the industrialized factory-farm system. With the possible exception of the domestication of wheat, the green revolution is the worst thing that has ever happened to the planet. [For example], it disrupted long-standing patterns of rural life worldwide, moving a lot of no-longer-needed people off the land and into the world’s most severe poverty.”).

39. IMHOFF, *supra* note 6, at 38.

40. *Id.*

41. *Id.* at 39.

Without farmers' rights advocates to protect the small farmer in the 1970s, the largest mechanized farms and agricultural processing companies banded together with federal legislators from the southeastern and upper midwestern states.⁴² This collaboration quickly demonstrated the inherent problem with our nation's inequitable senatorial distribution: each state receives two important votes in the Senate on behalf of its constituents, but each constituent in sparsely populated states has a much higher per capita representation in the Senate than does a constituent in a densely populated state.⁴³ Based in sparsely populated Midwestern states, the growing agribusiness lobby capitalized on this constitutional mandate to manipulate the agricultural policy system to its benefit. Specifically, this lobby worked with the most important, but controversial figure in the 1970s agricultural arena to craft federal agribusiness-favorable farm policies.

President Richard Nixon appointed Earl Butz to serve as his second Secretary of Agriculture.⁴⁴ Butz is mostly remembered today for his public insults of Pope Paul VI in 1974, numerous racist remarks, and his conviction for tax evasion.⁴⁵ However, few

42. *Id.* at 38.

43. For example, the United States Census Bureau estimates the combined 2008 populations of Kansas, Nebraska, and Iowa at 7,588,121. When divided by their six senators, these three farming states have one senator, and thus one vote on each senatorial bill, for every 1.26 million citizens. *See* U.S. Census Bureau, Annual Population Estimates 2000 to 2008, <http://www.census.gov/popest/states/NST-ann-est.html> (last visited Feb. 17, 2009). In contrast, the Census Bureau estimates the combined 2008 populations of California, Texas, and New York at 80,573,937. *See id.* When divided by the six senators representing these states, constituents in these states only have one senator, and thus one vote on each critical senatorial bill, for every 13.42 million citizens. This discrepancy defies the "one person, one vote" concept of the American democratic system because it inequitably gives constituents in sparsely populated states incredible power—on the magnitude of ten times in the current example—to determine crucial policies that impact all of our nation's citizens equally. Although in fairness it must be noted that highly populated states have more members in the House of Representatives than their sparsely populated counterparts, it must also be emphasized that the number of members a state has in the House is apportioned on a per capita basis. The net effect is that citizens of sparsely populated states have equal voting power in the House, since *all* U.S. citizens are represented on a per capita basis, but the same citizens of sparsely populated states have considerably magnified voting power in the Senate as compared to their counterparts from highly populated states.

44. IMHOFF, *supra* note 6, at 38.

45. *Id.*; *Quiet Please*, TIME, Dec. 9, 1974, available at <http://www.time.com/time/magazine/article/0,9171,908948,00.html>; *Exit Earl, Not Laughing*, TIME, Oct. 18, 1976, available at <http://www.time.com/time/magazine/article/0,9171,946703,00.html>; *Butz*

remember the most indelible imprint that he left on the American landscape: the encouragement of large-scale “megafarms” that prioritize crop yields over environmental protection and public health. Although his agricultural legacy is not surprising considering the fact that Butz served as a board member for many of the burgeoning agribusiness companies before his appointment as United States Department of Agriculture (USDA) Secretary,⁴⁶ the speed with which he altered the nation’s agricultural framework is incredible. Initially, Butz called on American farmers to “Get Big or Get Out,”⁴⁷ which visibly clashed both with the Jeffersonian agrarianism that stabilized the nation in its early years and with the initial Farm Bill’s goal of protecting the small rural farmer in order to secure our nation’s food supply. As part of this policy, Butz proclaimed that “farming ‘is now a big business’ and that the family farm ‘must adapt or die’ by expanding into large operations reliant on industrial pesticides, herbicides, and fertilizers.”⁴⁸ This ruthless “adapt or die” mentality gave the growing agribusiness industry ammunition to overpower unprofitable small farms that could not compete in a megafarm-dominated market.

In 1972, Butz pushed even more aggressive policies as he urged farmers to “plant from fencerow to fencerow” to maximize yields of commodity crops regardless of the consequences.⁴⁹ Thus, “[f]armers who had maintained wild or semi-wild borders around and between fields (in accordance with the best practices [recommended by] former administrations), tore out shelterbeds, windbreaks, filter strips, and contours.”⁵⁰ Forests were decimated and critical wetlands were drained, frequently with direct assistance and financial support from the USDA.⁵¹ In addition, the heightened use of toxic chemicals on farms caused the nation’s

Released 5 Days Early, N.Y. TIMES, Jul. 25, 1981, available at <http://query.nytimes.com/gst/fullpage.html?res=9400E1D9163BF936A15754C0A967948260>.

46. Tom Philpott, *The Butz Stops Here*, GRIST, Feb. 7, 2008, <http://www.grist.org/comments/food/2008/02/07/>.

47. IMHOFF, *supra* note 6, at 38.

48. *U.S. Agriculture Secretary Ousted Over Racist Joke*, L.A. TIMES, Feb. 3, 2008, at B9, available at <http://articles.latimes.com/2008/feb/03/local/me-butz3>.

49. *Id.*; IMHOFF, *supra* note 6, at 38.

50. IMHOFF, *supra* note 6, at 38-39.

51. *Id.* at 39.

watersheds to become increasingly polluted and resulted in a sharp decline in plant and animal health.⁵² Agricultural “progress” began to be measured in the 1970s and beyond solely by commodity crop yield increases, which disguised many of the effects of moving the nation to large-scale industrial farming such as environmental degradation and lack of a diverse and nutritious food supply for the nation’s citizens.⁵³

Although Butz reigned over the USDA for only five years before his resignation in 1976, his policies forever transformed both the agricultural system of our nation and the rural landscape once healthfully dotted by profitable small farms. During the last years of Butz’s reign and in the years following his resignation, Butz’s goal of shifting agriculture to a commercialized industry was fully realized. For example, New Deal programs such as loan-based market regulations—mainstays in past Farm Bills that protected the family farmer by issuing government-backed loans that need not be repaid if drought, flood, or other unforeseeable events struck—were stripped from the 1973 Farm Bill “in favor of farm crop payments based on maximizing yields.”⁵⁴ Trying to survive under the USDA’s ever more important subsidy system that emphasized maximum crop yield, many farms began to grow in size as they plowed marginally productive lands.⁵⁵ Despite their efforts, many family farms were unable to survive the “adapt or die” mandate of Earl Butz because they simply did not have the requisite financial resources and labor capabilities. Therefore, these farms did only what they could: they died. As part of this painful death, foreclosures and bankruptcies skyrocketed, rural

52. *Id.*

53. *Id.*; CAROLYN DIMITRI ET AL., U.S. DEP’T OF AGRIC. (USDA), ECON. RES. SERV., THE 20TH CENTURY TRANSFORMATION OF U.S. AGRICULTURE AND FARM POLICY 5 (2005), available at <http://www.ers.usda.gov/publications/eib3/eib3.pdf>. Figure 4 of this report shows that the number of commodity crops produced per farm remained steady for the first half of the twentieth century at approximately four to five crops per farm before declining sharply in the 1970s to less than three crops per farm. In 2002, the number dipped even more steeply as the average neared only one commodity crop produced per farm. *Id.*

54. IMHOFF, *supra* note 6, at 39; Agricultural and Consumer Protection Act of 1973, Pub. L. No. 93-86, 87 Stat. 221 (1973), available at <http://www.nationalaglawcenter.org/assets/farmbills/1973.pdf>.

55. IMHOFF, *supra* note 6, at 39.

suicides increased, and a “farm exodus” paralyzed the nation’s agricultural regions.⁵⁶

The USDA made a significant transformation when it gutted New Deal loan programs that kept farms afloat even when crop prices were falling.⁵⁷ Although subsidies had been part of the Farm Bill since 1933, the change in the 1970s from loans to direct payments “was revolutionary . . . [because] the new subsidies encouraged farmers to sell their corn at any price, since the government [and thus taxpayers] would make up the difference.”⁵⁸ Agribusiness lobbied for this shift to direct payments because large commercial farms, grain dealers, and food processing companies recognized the agricultural potential that existed in an ever-globalizing world.⁵⁹ Their common goal was to “ensure a steady supply of cheap commodity crops that they could trade internationally and process into value-added products.”⁶⁰ This goal was much easier than anticipated because the largest of grain processors, namely Cargill⁶¹ and Archer Daniels Midland (ADM), exerted considerable influence over the Farm Bill drafting process and actually wrote large industry-favorable portions of Farm Bills in the 1980s.⁶² With the industry-favorable commodity subsidy program firmly in place due to intense congressional pressure by Cargill, ADM, and other corporate giants, the transition from a predominantly family-based agricultural system to a commercial megafarm system was complete.

One reason that many Americans fail to grasp the importance of the Farm Bill and its commodity subsidy program, an understanding that is essential if reform is ever to occur, is that American taxpayers are disconnected from the programs

56. *Id.*

57. See MICHAEL POLLAN, *THE OMNIVORE’S DILEMMA: A NATURAL HISTORY OF FOUR MEALS* 52 (2006) [hereinafter POLLAN, *THE OMNIVORE’S DILEMMA*].

58. *Id.*

59. IMHOFF, *supra* note 6, at 39.

60. *Id.*

61. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 63 (Cargill is the largest privately held corporation in the world); *America’s Largest Private Companies*, FORBES, Nov. 8, 2007, http://www.forbes.com/lists/2007/21/biz_privates07_Americas-Largest-Private-Companies_Revenue.html (Cargill is the largest privately held corporation in the United States in terms of employees and the second largest in terms of profit).

62. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 52; IMHOFF, *supra* note 6, at 39 (“Cargill and Archer Daniels Midland were essentially writing the Farm Bills.”).

supported by federal taxes. If taxpayers realized that a substantial chunk of their tax dollars provided subsidies to large corporations and wealthy megafarms for crops that are not in demand in our nation, taxpayers would be outraged. Therefore, it is important for the public to understand the commodity subsidy program and the impacts of that program in a fair light.

“[W]hat began in the 1930s as a limited safety net for working farmers has swollen into a far-flung infrastructure of entitlements” for the largest farmers and processors.⁶³ Today, just five crops—corn, cotton, wheat, rice, and soybeans—control the commodity subsidy market.⁶⁴ Most Americans will be shocked to find out that American taxpayers spent \$172 billion on commodity subsidies in a single decade between 1997 and 2006.⁶⁵ Despite the fact that “*thousands* of plant and animal species [are] cultivated for human use,” more than 84% of the \$172 billion spent to subsidize our nation’s agriculture during that period went solely to these five crops.⁶⁶ Corn farmers alone receive more than \$4 billion annually from government subsidies, making corn the largest crop in terms of subsidies.⁶⁷ Another fact that shocks the conscience is how agribusiness continues to receive billions of tax dollars despite record profits at megafarms: “[i]n 2005 alone, *when pretax farm profits were at a near-record \$72 billion*, the federal government handed out more than \$25 billion in aid [to farms], almost 50 percent more than the amount it pays to families receiving welfare [in the United States].”⁶⁸

Not surprisingly, these massive government handouts end up in the hands of the same wealthy agribusiness industry that helped to write the Farm Bill’s commodity policies. More than half of all subsidies, equaling nearly \$13 billion each year, go to seven states

63. Dan Morgan, Gilbert M. Gaul, & Sarah Cohen, *Farm Program Pays \$1.3 Billion to People Who Don’t Farm*, WASH. POST, Jul. 2, 2006, at A-01, available at <http://www.washingtonpost.com/wp-dyn/content/article/2006/07/01/AR2006070100962.html>.

64. IMHOFF, *supra* note 6, at 59.

65. Morgan, Gaul, & Cohen, *supra* note 63.

66. IMHOFF, *supra* note 6, at 59-60 (emphasis added); Env’tl. Working Group (EWG), *Subsidies on Autopilot: Farmers Receiving Record Crop Prices and Earning Record Incomes*, <http://farm.ewg.org/sites/farmbill2007/autopilot.php> (last visited Mar. 2, 2009).

67. IMHOFF, *supra* note 6, at 17.

68. Morgan, Gaul, & Cohen, *supra* note 63 (emphasis added).

that heavily produce the five predominant commodity crops.⁶⁹ With the exception of Texas and Illinois, these states tend to be sparsely populated, which gives the politically active agribusiness industry amplified congressional power to control national farm policies because of the inequitable senatorial distribution discussed above. Further exposing the inequity of the system, the wealthiest 10% of farm subsidy recipients, namely large corporations, non-farming homeowners, and absentee landowners, receive approximately 67% of all subsidy payments under the Farm Bill.⁷⁰ The remaining American farmers, numbering two million, receive little to no assistance in the form of subsidy payments and have been forced to “survive primarily on off-farm income.”⁷¹ Although many Americans have a false perception that the government provides financial support to family farms, three in five farmers receive no subsidies⁷² while the richest 5% of farmers each receive a whopping average of \$470,000 annually.⁷³ In fact, “equating the farm bill with ‘saving the family farm’ adds insult to injury . . . [for small] farmers who receive no payments at all.”⁷⁴ Thus, it is necessary for the American public to recognize that despite the initial Farm Bill’s aim to protect small farmers, the goals have shifted dramatically over the past few decades and this shift has resulted in unintended consequences that devastate our domestic and global communities.

The most direct consequence of the Farm Bill’s commodity subsidy program is the utter destruction of the family farm and the resulting depopulation of rural America. Unfortunately, Earl Butz’s ruthless “get big or get out” and “adapt or die” mantras lived on long after his stint in the nation’s capital. In 1935, there were

69. IMHOFF, *supra* note 6, at 59; EWG, *supra* note 66 (“Just seven states will collect half of all the direct payment subsidy over the next five years: Iowa, Illinois, Texas, Nebraska, Kansas, Minnesota, and Arkansas.”).

70. IMHOFF, *supra* note 6, at 59; Morgan, Gaul, & Cohen, *supra* note 63 (noting that the federal government has paid more than \$1.3 billion since 2000 to “individuals who do no farming at all,” including many unknowing landowners that suddenly starting receiving six-figure checks from the government because their land was farmed years ago by previous owners).

71. IMHOFF, *supra* note 6, at 59.

72. *Id.* at 23.

73. Editorial, *The Charm of the Farm*, WASH. POST, Oct. 19, 2005, at A20.

74. IMHOFF, *supra* note 6, at 59.

6.8 million farms in the United States with an average size of 155 acres.⁷⁵ By 2002, there were only 2.1 million farms with an average size of 441 acres.⁷⁶ Therefore, the total number of farms declined by 70% in just sixty-seven years, but the amount of land in agricultural production stayed fairly constant as bigger farms purchased smaller farms that could not survive. In commodity-heavy Iowa, for example, small farmers were extremely burdened:

Figure 1⁷⁷

Year	Total farms	Farms <50 Acres	Farms 50-500 Acres	Farms >1,000 Acres
1900	228,622	35,941	192,341	340
1950	203,159	29,103	173,802	254
1997	90,972	29,642	55,443	5,887

One disturbing trend demonstrated by this table is that the total number of farms in Iowa only decreased 10% between 1900 and 1950, but the total number of farms decreased more than 55% between 1950 and 1997. This means that in the pre-Farm Bill era and in the first seventeen years of the Farm Bill when small farm protection was a key goal, overall farm loss was quite minimal. However, in the agribusiness-dominated second half of the twentieth century, the overall number of farms plummeted in the face of poor agricultural policies. This severe drop-off can be attributed to the commodity subsidy program that grew rapidly during this period. The respective Farm Bills during this time were commandeered by Cargill and ADM, among others, to benefit large farmers and processors, and Figure 1 confirms that the companies accomplished their goal, in Iowa and beyond.⁷⁸

Another alarming trend illustrated by Figure 1 is the increase in large farms of more than 1000 acres by 2000% between 1950 and 1997 after actually decreasing between 1900 and 1950. In

75. USDA, ECON. RES. SERV., STRUCTURE AND FINANCES OF U.S. FARMS: 2005 FAMILY FARM REPORT, available at <http://www.ers.usda.gov/Publications/EIB12/>.

76. *Id.*

77. KEENEY & KEMP, *supra* note 3, at 9 tbl.1.

78. IMHOFF, *supra* note 6, at 39.

contrast, mid-sized farms between 50 and 500 acres, which are small and mid-sized farms seeking to make a living solely from farming,⁷⁹ saw a sharp decline of nearly 70% between 1950 and 1997 after only a 10% drop between 1900 and 1950. As unsettling as these trends are, the wealthy corporations have been adept at utilizing their financial resources to deceive the public by keeping these trends out of the popular media and by claiming to advocate for policies favoring small American farmers. In reality, small farmers have been frequently displaced by these policies and have twice voiced their opinions to Congress on how to change domestic agricultural policy to realign the Farm Bill with its New Deal roots aimed at protecting family farms.⁸⁰ In both situations, their advice and pleas became distant memories as Congress chose instead to appease Cargill, ADM, and other large campaign contributors. First, the 1996 Farm Bill, colloquially named the “Freedom to Farm” Act was enacted to eliminate agricultural subsidies.⁸¹ Nonetheless, the Freedom to Farm Act “triggered the largest government payouts in history, the opposite of its policy objective” because Congress “renewed on [its subsidy] phase-out plan.”⁸² Then, in 2002, President George W. Bush signed the “Farm Security and Rural Investment Act” Farm Bill, which he hailed as legislation that “preserves the farm way of life for generations.”⁸³ Despite Bush’s claim that the bill would protect family farming, knowledgeable critics quickly labeled the bill as “a 10-year, \$173.5 billion bucket of slop”⁸⁴ and “a gravy-train for mega farms and

79. The number of small farms under fifty acres stayed relatively constant throughout the twentieth century. This is likely due to the fact that farms under fifty acres typically are either cultivated primarily for household consumption or for side income in addition to a primary occupation. Thus, the continued existence of such a farm is not influenced as greatly by the price volatility that accompanies the nation’s agricultural market. See generally TONY WATERS, *THE PERSISTENCE OF SUBSISTENCE AGRICULTURE: LIFE BENEATH THE LEVEL OF THE MARKETPLACE* (2007) (emphasizing the continued survival of subsistence and near-subsistence agriculture throughout history despite the constraints typically placed on farmers by a capital-driven market).

80. See IMHOFF, *supra* note 6, at 53.

81. Federal Agriculture Improvement and Reform Act of 1996, Pub. L. No. 104-127, 110 Stat. 888 (1996), available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=104_cong_public_laws&docid=f:publ127.104.pdf.

82. IMHOFF, *supra* note 6, at 53.

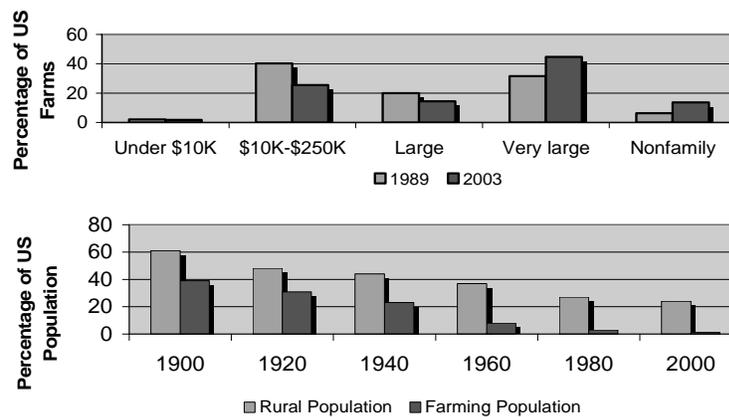
83. *Id.* (quoting SCOTT MARLOW, RURAL ADVANCEMENT FOUND. INT’L-USA, *THE NON-WORK GUIDE TO UNDERSTANDING FEDERAL COMMODITY PAYMENTS* 3 (2005)).

84. *Id.* (quoting *The Farm State Pig-Out: Members of Both Parties Spread the Manure*

corporations.”⁸⁵ Therefore, it has become clear that small farmers alone, without public support, do not have the political voice needed to overcome the financial and political firepower that agribusiness and corporations constantly wield to protect and increase their profits.

This stagnation and lack of progress in fixing the nation’s subsidy program has caused a rural exodus that has devastated small-town communities and has resulted in a loss of invaluable agricultural knowledge and cultural resources. For example, the disappearance of large portions of a rural town’s population negatively affects all aspects of the community’s functionality by eliminating diverse employment opportunities, threatening rural economic health, and depleting the local tax base and related public services that are essential to a community’s continued existence.⁸⁶ The correlation between the growth of large industrial megafarms and this rural exodus is very strong:

Figures 2⁸⁷ and 3⁸⁸



Around, WALL ST. J., May 5, 2002).

85. *Id.* (quoting MARLOW, *supra* note 83).

86. Thomas L. Dobbs, *Working Lands Agri-Environmental Policy Options and Issues for the Next United States Farm Bill* 9 (Econ. Staff Paper 2006-3, 2006).

87. CHICAGO COUNCIL ON GLOBAL AFFAIRS (CHICAGO COUNCIL), AGRIC. TASK FORCE, MODERNIZING AMERICA’S FOOD AND FARM POLICY: VISION FOR A NEW DIRECTION 20 fig.3 (2006), <http://www.thechicagocouncil.org/UserFiles/File/Task%20Force%20Reports/Agriculture%20Task%20Force%20report.pdf> (quoting USDA, ECON. RES. SERV., AMERICA’S DIVERSE FAMILY FARMS: STRUCTURE AND FINANCES 4 (2006), available at <http://www.ers.usda.gov/publications/EIB13/eib13.pdf>).

88. *Id.* at 56 fig.11.

As these graphs depict, the percentages of small and medium-sized farms are shrinking quickly as the percentage of large megafarms swells. The megafarms are rapidly becoming corporate, nonfamily farms, leading to the disintegration of rural communities. Although the percentage of Americans living in rural areas declined steadily throughout the twentieth century, the percentage of the population devoted to agriculture declined much more precipitously. In addition to the loss of rural communities, this transition to commercialized farming has resulted in the loss of important agricultural knowledge: “The farmer replacement rate has fallen below 50% as younger generations flee the Corn Belt” and other traditional farming communities.⁸⁹ Due to this phenomenon, there are currently twice as many farmers over the age of sixty-five as there are under the age of thirty-five, which is a perilous situation as the United States edges closer to becoming a net importer of food.⁹⁰ Thus, our nation faces a substantial gap in our agricultural knowledge because the best farming practices are being phased out over time by megafarm-favorable commodity subsidies and concerning trends show that there soon might be too few remaining farmers to fill those gaps in knowledge.⁹¹

The rural economic fallout from bolstering megafarms and corporations through commodity subsidies is not unique to farmers. Industries that rely on subsidized crops, which provide jobs and are typically located in the heart of farm country, have increasingly become monopolized by a few large companies in each respective industry and are now typically located outside of rural America.⁹² Economists consider a market “concentrated” if the market share of the top four producers exceeds 20% and “very

89. IMHOFF, *supra* note 6, at 17.

90. *Id.* at 17, 65, 67 fig.14. In 1996, for example, the United States sent approximately \$61 billion worth of agricultural exports overseas while only purchasing \$31 billion worth of agricultural imports. In 2004, however, the United States sent \$63 billion worth of agricultural exports overseas, an eight-year increase of only \$2 billion, while purchasing \$51 billion worth of agricultural imports, an eight-year increase of \$20 billion. If this trend has continued since 2004, the United States is likely very close to becoming a net importer of food if it is not already a net importer.

91. IMHOFF, *supra* note 6, at 42 (“In contrast [to the United States where few people know how to farm], more than 70% of the rest of the world’s inhabitants still make their living through agriculture, primarily at a small-scale or subsistence level.”).

92. *Id.*

highly concentrated” if this market share approaches or exceeds 50%.⁹³ Figure 4 depicts one of the primary problems of a subsidy system in commercialized agriculture: since the wealthiest corporations receive double compensation by both securing the largest profits through sales and acquiring the largest governmental subsidies based on their yields, they are apt to monopolize the market and push smaller competitors to the wayside.

Figure 4⁹⁴

MARKET SHARE CONTROLLED BY TOP FOUR PRODUCERS	
<u>Very Highly Concentrated</u>	<u>Concentrated</u>
Beef Packers 84%	Pork Production 49%
Pork Packers 64%	Animal Feed Processing 34%
Broiler Production 56%	
Turkey Production 51%	
Flour Milling 63%	
Soybean Crushing 71%	

As the small companies fall to the wayside, so too do jobs, public services, and entire communities.⁹⁵ Further, since the majority of farmers rely on these highly consolidated industries to buy their farm products, there exists an unfair and asymmetrical market system whereby farmers are forced to compete fiercely with each other to sell at the lowest price to the few companies in the field.⁹⁶ Although farmers are thus forced to drive their prices lower because of the lack of choice in agricultural buyers, the companies in these heavily consolidated industries benefit enormously from an effective lack of competition because of the overconcentration of products in these markets.⁹⁷ By encouraging oligopolies in these farm-based industries, the Farm Bill’s commodity subsidies have torn apart rural communities and have given select corporations a stranglehold on both financial viability in the farming market and

93. *Id.*

94. Timothy A. Wise, *Identifying the Real Winners from U.S. Agricultural Policies* 3 (Global Dev. and Env’t Inst. Working Paper No. 05-07, 2005), available at <http://ase.tufts.edu/gdae/Pubs/wp/05-07RealWinnersUSAg.pdf>.

95. See Dobbs, *supra* note 86.

96. See Wise, *supra* note 94, at 4-5.

97. See *id.*

political access to peddle their supposedly “pro-agriculture” initiatives before state and national legislatures.

In addition to these grave domestic consequences, America’s commodity subsidies have numerous detrimental effects on the health of the world’s agricultural economy. Just as immense overproduction of subsidy-dependent commodity crops depresses domestic prices, American subsidies result in depressed global commodity prices that severely affect the ability of farmers in the developing world to survive financially.⁹⁸ Nobel Prize-winning economist Joseph Stiglitz opined, “[w]hen subsidies lead to increased production with little increase in consumption, as is typical with agricultural commodities . . . [the result is] lower prices for producers, lower incomes for farmers, and more poverty among poor farmers in the Third world.”⁹⁹ In response to depressed global cotton prices, for example, an estimated 40,000 cotton farmers in India committed suicide between 1996 and 2005, while thousands more sold one of their kidneys on the black market for approximately \$800.¹⁰⁰ West Africa was similarly devastated by declining cotton prices spurred by American cotton subsidies which led West African farmers to state, “[t]he more we produce, [t]he more we export, [t]he poorer we get.”¹⁰¹ Developing nations and international institutions such as the World Bank have placed increased pressure on the United States and the European Union to phase out agricultural export subsidies over the past decade, but developed nations have made few efforts to eliminate such subsidies.¹⁰²

A monumental change occurred in 2004 when the World Trade Organization (WTO) ruled that the United States owed Brazil \$3 billion in damages due to U.S. agricultural subsidies for cotton.¹⁰³ After realizing that political pressure was not producing favorable results, Brazil initiated a WTO lawsuit against the United

98. IMHOFF, *supra* note 6, at 72-75.

99. Joseph Stiglitz, *The Tyranny of King Cotton*, Oct. 8, 2006, <http://www.project-syndicate.org/commentary/stiglitz76>; IMHOFF, *supra* note 6, at 72-73.

100. IMHOFF, *supra* note 6, at 78.

101. *Id.* at 79.

102. *Id.* at 74.

103. INST. FOR AGRIC. & TRADE POL’Y, U.S. WTO COMMITMENTS AND THE FARM BILL (2007), <http://www.iatp.org/iatp/publications.cfm?accountID=258&refID=99970>.

States, arguing that U.S. agricultural subsidies amounted to “trade distortion,” which is prohibited by WTO rules.¹⁰⁴ In 2004, Brazil prevailed, when the WTO Dispute Settlement Board ruled that U.S. subsidies distorted agricultural markets and international agricultural trade.¹⁰⁵ The WTO Appeals Panel affirmed this ruling on March 3, 2005, when the Panel concluded that U.S. subsidies “artificially depress global prices and stimulate overproduction, thereby costing Brazilian cotton farmers millions of dollars in sales.”¹⁰⁶ The Panel further ruled that the United States owed Brazil and its farmers \$3 billion for damages caused by the subsidies, which Brazil could recoup by “retaliating” against United States exports through heavy taxation.¹⁰⁷ On the heels of this victory, Brazil and Canada are currently initiating separate WTO disputes that allege gross miscalculations by the United States of its subsidy allotment in past years that have resulted in overproduction and trade distortion.¹⁰⁸ Although the WTO Agreement on Agriculture requires all parties to promptly report all subsidies both in terms of classification and payment amount in order to ensure that no country exceeds its allotted subsidy ceiling, the United States has failed to report any subsidy payments to the WTO since 2001.¹⁰⁹ Despite this clear violation of the WTO Agreement, there is no sanction for failure to report.¹¹⁰ Thus, it will be important to monitor the efficacy of future WTO lawsuits against the United States, but it will likely be difficult to force the United States to comply with the mandates of the WTO Agreement without a more defined and more stringent enforcement mechanism.

Not only do farmers in developing nations feel the immense burden placed on their continued survival, but most inhabitants of the developing world suffer from poverty and hunger that is due at least in part to U.S. agricultural subsidies. There are currently 1.25 billion people who live on less than \$1 per day and more than three billion individuals, or half of the global population, that live

104. *Id.*; IMHOFF, *supra* note 6, at 74.

105. INST. FOR AGRIC. & TRADE POL'Y, *supra* note 103.

106. IMHOFF, *supra* note 6, at 74.

107. INST. FOR AGRIC. & TRADE POL'Y, *supra* note 103.

108. *Id.*

109. *Id.*

110. *Id.*

on less than \$2 per day.¹¹¹ Approximately seventy percent of these people that live in extreme poverty “live in rural areas and most are farmers.”¹¹² Therefore, it is not difficult to imagine how extreme overproduction of commodity crops in the United States severely impacts these rural farmers whose continued existence is solely tied to their ability to farm in an increasingly globalized market rife with trade distortion.

Hunger and malnutrition, which persist throughout the developing world, are also directly linked to the U.S. Farm Bill in two distinct ways: (1) the Farm Bill encourages the cultivation of commodity crops that are not used efficiently because they are predominantly fed to animals in livestock operations or utilized in processing plants rather than being used for human food consumption, and (2) the Farm Bill discourages the production of healthy non-commodity crops on domestic soil while applauding large companies that purchase the best foreign agricultural lands to provide the healthy food supply of the United States. As the nation’s largest commodity crop, corn provides a telling case study to illustrate both of the above points. When corn is eaten directly by humans, as is often the case in the developing world, the human body directly absorbs all of the energy captured by the plant that is stored in the form of carbohydrates prior to harvest.¹¹³ However, when humans eat the end product after the same corn is fed to livestock¹¹⁴ or the corn is processed into some other consumptive food product, a human only receives approximately 10% of the energy that the corn harnessed before harvest.¹¹⁵ Thus,

111. CHICAGO COUNCIL, *supra* note 87, at 70.

112. *Id.*; WATERS, *supra* note 79, at 14. In terms of relative economic strength, it is true that farmers suffering from extreme poverty are relatively “strong” because they can cultivate food independent of market forces since they are typically not involved in the marketplace. It is also true, however, that these people are very “weak” because their survival outside of food requires medicine, healthcare, and education that can only be purchased with capital acquired from the marketplace. Since these individuals typically cannot participate in the marketplace because of their lack of resources, they often go without these essential basic needs.

113. POLLAN, THE OMNIVORE’S DILEMMA, *supra* note 57, at 118.

114. C. FORD RUNGE, MIDWEST COMMODITIES & CONSERVATION INITIATIVE, KING CORN: THE HISTORY, TRADE AND ENVIRONMENTAL CONSEQUENCES OF CORN (MAIZE) PRODUCTION IN THE UNITED STATES 6 (2002), available at <http://worldwildlife.org/ci/pubs/KingCorn1.pdf> (“Roughly 66 percent of global corn production is consumed by animals.”).

115. POLLAN, THE OMNIVORE’S DILEMMA, *supra* note 57, at 118.

our agricultural policies, which favor the production of large surpluses of corn and other commodity crops for livestock feed and processing are very inefficient in maximizing the nutritional benefits of our agricultural lands.

These policies are effectively wasting 90% of our agricultural capacity to harness energy in crops on American soil. At the same time, the heavy over-emphasis on planting corn and other subsidized commodity crops in the United States¹¹⁶ requires our nation's large population to seek fruits and vegetables from other nations, which typically results in those nations cultivating their best lands for exports to the United States or the European Union.¹¹⁷ Not only does this relegate the cultivation of local food supplies to marginal agricultural soils with lower nutritional capacities, but it also perpetuates global inequality by allowing "affluent and overfed" nations access to the "best soils in South America" and elsewhere while locals suffer at the expense of large multinational agricultural companies.¹¹⁸ If American farm policies were changed to provide higher nutritional efficiency on our domestic croplands, the resulting yields could reduce the need to import produce from abroad and leftover domestic crops, if any, could go towards feeding the developing world and eliminating unnecessary illnesses related to malnourishment. In fact, since corn is "the staple food of nearly 350 million people in Latin America and Africa," and since the United States is the largest corn producer by a significant margin, "accounting for 43% of world production,"¹¹⁹ there is much room for the United States to augment its farming and livestock policies to implement more efficient agricultural programs that can wean Americans off of foreign produce and simultaneously return prime foreign agricultural lands to local communities and help to nourish the world's developing populations.

116. RUNGE, *supra* note 114, at 6 (noting that corn production accounts for approximately 25% of U.S. cropland); *see infra* text accompanying notes 302-312 (explaining that the percentage of U.S. cropland in corn production has increased steadily as Congress has enacted even larger subsidies for corn by adding incentives for producing corn ethanol for fuel purposes).

117. POLLAN, *THE OMNIVORE'S DILEMMA*, *supra* note 57, at 175.

118. *See id.*

119. RUNGE, *supra* note 114, at 6.

United States agricultural policy has another impact on the developing world that most Americans do not realize: the Farm Bill is directly responsible for driving immigration to the United States. Although illegal immigration has been presented as a problem, and was an especially heated issue in the most recent presidential election,¹²⁰ such immigration is actually motivated by U.S. policies, including the Farm Bill, that create poverty and economic instability abroad and leave immigrants no choice but to uproot their lives and move to the United States. Mexican immigration to the United States over the past decade provides a poignant example of the Farm Bill's impact in this context. During that time, "an estimated 1.4 million Mexicans have been forced off their lands in search for work . . . north of the border . . . because of [f]ree trade policies and the 'dumping' of cheap U.S. subsidized corn [that has] devastated Mexico's traditional agriculture."¹²¹ The surge of immigrants from Mexico to the United States over the last decade "is inextricably linked to the flow of [subsidized, cheap] American corn in the opposite direction."¹²² Congress has not remedied this policy failure in recent years; rather it has incentivized domestic production of corn solely for ethanol use, which has sent global corn prices soaring as less corn is available for food consumption.¹²³ Mexicans now face a difficult financial dilemma as their staple food, corn, continues to vault to record high prices because most of Mexico's former corn farmers have long since abandoned their fields due to U.S. surplus dumping and because the United States is no longer willing to send its cheap corn to Mexico because of the recent ethanol fad.¹²⁴ Further, despite the fact that U.S. policies triggered Mexican immigration by depressing world crop prices, Congress's apparent

120. See, e.g., Joe Klein, *Immigration: The Hottest Issue*, TIME, Nov. 28, 2007, available at <http://www.time.com/time/nation/article/0,8599,1688794,00.html?xid=feed-cnn-topics>.

121. IMHOFF, *supra* note 6, at iii; Pollan, *You Are What You Grow*, *supra* note 1 ("By making it possible for American farmers to sell their crops abroad for considerably less than it costs to grow them, the farm bill helps determine the price of corn in Mexico . . . and therefore whether [Mexican] farmers . . . will survive or be forced off the land to migrate to the cities—or to the United States.").

122. Pollan, *You Are What You Grow*, *supra* note 1.

123. *Id.*

124. *Id.*

solution is to deport illegal immigrants back to homelands rendered unprofitable and unsustainable by our very own agricultural policies. For years, the United States has reaped the benefit of dumping subsidized corn on Mexico and the developing world at the expense of economic stability and agricultural sustainability in those nations. It is now time for the United States to accept the consequences of these actions by first recognizing the connection between our national policies and immigration and by then taking action to modernize the Farm Bill and other xenophobic national policies to eliminate trade distortion that severely disadvantages the developing world.

Circling back to the United States, it is important to realize that the Farm Bill's vast impact on public health is not limited to the developing world. The Farm Bill is directly responsible for many of the public health disasters in our nation such as hunger, malnutrition, lack of plentiful fruits and vegetables for poorer Americans, and the obesity epidemic. At the same time that our nation's public health is suffering, our nation's natural environment is being raped by the devastating agricultural practices of commercialized industrial farming. These two indivisible concepts—poor public health and a degraded natural environment—are deeply intertwined: both are consequences of the megafarm-favorable Farm Bill, both are hidden externalities paid for by the American public on behalf of greedy corporations and megafarms, and both are striking reminders that our nation's agricultural policies are in diametrical opposition to the public's best interests. Although any of the Farm Bill's harmful consequences discussed above could be singled out for more detailed discussion, this Article will now focus in depth on the environmental degradation of commercial agriculture and the severe public health consequences of such agriculture because these prominent examples hit close to home for most Americans.

For the remainder of this Article, it is imperative to remember one shocking truth—every American pays for commodity crops five distinct times: (1) at the supermarket checkout, (2) with federal taxes that predominantly line the pockets of subsidized agribusiness, (3) with federal taxes for environmental cleanup costs paid by the government because of poor environmental

protection standards in the Farm Bill,¹²⁵ (4) through individualized medical costs linked to obesity, diabetes, asthma, malnutrition, hunger, and other illnesses caused by the Farm Bill, and (5) with additional federal taxes paid to collectively buttress healthcare programs such as Medicare, Medicaid, and emergency room care for patients of lower socioeconomic status who often fall ill as a result of the Farm Bill-induced food system. It is only when the majority of American taxpayers and policymakers understand the true costs of industrial agriculture that the necessary changes can be made to fix the nation's rotten agricultural system.

II. THE FAILURES OF FARM BILL CONSERVATION PROGRAMS

To present the Farm Bill in a balanced manner, one cannot consider the Farm Bill's devastating environmental consequences without first acknowledging its attempts to incorporate environmental protection measures. Congress first made conservation an agricultural priority in the 1930s.¹²⁶ Although most of these conservation measures were enacted outside of the Farm Bill, these programs influenced farming choices in the United States and were thus integral to Farm Bill policies.¹²⁷ In 1935, for example, Congress enacted the Soil Conservation and Domestic Allotment Act.¹²⁸ This statute provided substantial funding to farmers who established soil conservation practices.¹²⁹ In fact, "[b]y providing rural Americans with conservation funding in the late 1930s, the administration was able to increase the quality of life and economic security that was shattered by the Great Depression" while also protecting the soil and the natural environment.¹³⁰

In the 1940s, however, "[c]onservation was put on the back burner" as farmers cashed in on high prices from wartime

125. IMHOFF, *supra* note 6, at 19.

126. Zachary Cain & Stephen Lovejoy, *History and Outlook for Farm Bill Conservation Programs*, CHOICES, 4th Quarter 2004, available at <http://www.choicesmagazine.org/2004-4/policy/2004-4-09.htm>.

127. Soil Conservation and Domestic Allotment Act of 1935, Pub. L. No. 74-46, 49 Stat. 163 (1935).

128. Cain & Lovejoy, *supra* note 126.

129. *Id.*

130. *Id.*

demand.¹³¹ Little changed until the Agricultural Act of 1956 created the Soil Bank, which was a program designed to take millions of acres of land out of production for the purposes of decreasing surplus supply and limiting erosion.¹³² Unfortunately, the Soil Bank halted operation in 1958 amid “criticism of its high cost and failure to reduce production.”¹³³ In the 1960s, legislative efforts to control surplus commodity crops such as the Emergency Feed Grain Act of 1961¹³⁴ and its successor in 1965¹³⁵ had minimal success due to the difference in profit that could be garnered by planting crops on the land as compared to conservation payments for taking that land out of production. With the outlook bleak from the recent failings of multiple conservation programs, Earl Butz effectively halted all conservation efforts in the early 1970s when he told America’s farmers to tear out their “shelterbelts, windbreaks, filter strips, and contours” that had been encouraged by past administrations as the best conservation measures.¹³⁶ Further, based on Butz’s call for “fencerow to fencerow” planting, the nation’s farmers “tilled up their conservation acreage.”¹³⁷ In fact, “[a] 1977 Congressional study found that 26% of farmers in the Great Plains Conservation Program had plowed up their newly established grasslands for wheat production” to meet Butz’s demand for increased crop yields.¹³⁸

Recognizing the detrimental environmental effects of Butz’s “fencerow to fencerow” planting strategy that prevailed in the 1970s and early 1980s, Congress finally took steps to mitigate such concerns in the 1985 Farm Bill, which was titled the Food Security Act.¹³⁹ For the first time, “[c]onservation programs . . . focus[ed]

131. *Id.*

132. *Id.*; Agricultural Act of 1956, Pub. L. No. 84-540, 70 Stat. 188 (1956), *available at* <http://www.nationalaglawcenter.org/assets/farmbills/1956.pdf>.

133. Cain & Lovejoy, *supra* note 126.

134. Emergency Feed Grain Act of 1961, Pub. L. No. 87-5, 75 Stat. 6 (1961).

135. Food and Agricultural Act of 1965, Pub. L. No. 89-321, 79 Stat. 1187 (1965), *available at* <http://www.nationalaglawcenter.org/assets/farmbills/1965.pdf>.

136. IMHOFF, *supra* note 6, at 38-39.

137. Cain & Lovejoy, *supra* note 126.

138. *Id.*

139. Craig Cox, *U.S. Agriculture Conservation Policy & Programs: History, Trends, and Implications*, in U.S. AGRICULTURAL POLICY AND THE 2007 FARM BILL 113, 115-17 (Kaush Arha et al. eds., 2007), *available at* http://woods.stanford.edu/docs/farmbill/farmbill_book.pdf; Food Security Act of 1985, Pub. L. No. 99-198, 99 Stat. 1354 (1985),

on conservation, not supply control or rural development.”¹⁴⁰ Unlike the conservation programs of the 1930s through the 1960s that were typically “vehicles for rural investment, income support, and supply control,” the programs starting in 1985 “were truly rooted in protecting natural resources.”¹⁴¹ “This swing in motives can be attributed to the demands of the environmental lobby . . . [and] [i]ncreased public awareness about the deleterious effects farming had on not only soil quality, but also water, air, and wildlife.”¹⁴²

The inclusion of such measures in the 1985 Farm Bill marked “a turning point in agricultural conservation history.”¹⁴³ As part of this bill, Congress created the Conservation Reserve Program (CRP), which sought to convert “highly erodible or otherwise environmentally sensitive lands to permanent vegetative cover.”¹⁴⁴ To do so, the CRP “set high penalties . . . for owners of highly erodible land that did not develop and implement a farm conservation plan [within ten years].”¹⁴⁵ Also in that Farm Bill, Congress implemented the related “Conservation Compliance” provision that required farmers who sought to grow subsidized crops on highly erodible lands to use “soil conservation measures that resulted in significant reduction in soil erosion” or face the possibility of losing their commodity subsidies entirely.¹⁴⁶ That year, Congress also instituted the first wetland conservation program, known as the “Swampbuster” provision, that “threatened producers with a loss in crop subsidies if they drained wetlands to produce subsidized crops.”¹⁴⁷ Lastly, the 1985 Farm Bill established the “Sodbuster” provision that “required complete implementation of a conservation plan before new [highly erodible land] could be

available at <http://www.nationalaglawcenter.org/assets/farmbills/1985-1.pdf>.

140. Cain & Lovejoy, *supra* note 126.

141. *Id.*

142. *Id.*

143. Cox, *supra* note 139, at 115-17.

144. *Id.*

145. Cain & Lovejoy, *supra* note 126 (noting that penalties included “loss of price-support programs, government crop insurance, [Farmer’s Home Administration] loans, [Commodity Credit Corporation] storage loans, and CRP payments”).

146. Cox, *supra* note 139, at 115-17.

147. *Id.*

cultivated for the first time.”¹⁴⁸ Congress’s common goal in enacting these programs was to reduce on-farm environmental concerns caused by agriculture by targeting the most expendable croplands—those marginal lands that were producing commodity crops where supply easily outpaced our nation’s demand for that crop.¹⁴⁹ Early on, “[t]hese programs were actually enforced . . . [resulting] in 36.4 million acres” being put into the CRP.¹⁵⁰

These conservation programs received added strength in the 1990 and 1996 Farm Bills, respectively titled the Food, Agriculture, Conservation, and Trade Act and the Federal Agriculture Improvement and Reform Act.¹⁵¹ In 1990, for example, Congress furthered the Swampbuster provision by creating the Water Quality Incentives Program (WQIP) that authorized annual payments to farmers who decided to exclude wetlands from crop production.¹⁵² The initial results of the WQIP were very positive: 10 million acres of land were enrolled in the program within a short period of time.¹⁵³ That same year, Congress initiated a program using a technique called Integrated Crop Management (ICM) under which subsidy farmers could plant up to 25% of their crop acreage in non-subsidized crops without losing their base subsidy payment from the government.¹⁵⁴ This ICM program acknowledged the importance of both crop rotation,¹⁵⁵ which relates to temporal diversity of crops, and polyculture, which relates to spatial diversity of crops, in naturally enriching a field’s soil to achieve more sustainable crop yields and more stable ecosystems. In 1996, Congress created the Wildlife Habitat Incentives Program (WHIP), which provided subsidy payments

148. Cain & Lovejoy, *supra* note 126.

149. See Cox, *supra* note 139, at 117-18.

150. Cain & Lovejoy, *supra* note 126.

151. *Id.*; Food, Agriculture, Conservation, and Trade Act of 1990, Pub. L. No. 101-624, 104 Stat. 3359 (1990), available at <http://www.nationalaglawcenter.org/assets/farmbills/1990-1.pdf>; Federal Agriculture Improvement and Reform Act, *supra* note 81.

152. Cox, *supra* note 139, at 118.

153. Cain & Lovejoy, *supra* note 126.

154. Mohinder Gill & Stan Daberkow, *Crop Sequences Among 1990 Major Field Crops and Associated Farm Program Participation*, SITUATION AND OUTLOOK REPORT: AGRIC. RESOURCES, Oct. 1991, http://findarticles.com/p/articles/mi_m3730/is_n24/ai_11546441.

155. *Id.*

and technical assistance to private landowners, not just farmers, to improve fish and wildlife habitat on private lands.¹⁵⁶ In addition, the 1996 Environmental Quality Incentives Program (EQIP) consolidated many of the 1985 and 1990 environmental programs, but it also gave farmers much more flexible criteria for seeking waivers from compliance with the Farm Bill's environmental programs.¹⁵⁷ With the environmental community concerned about the potential increase in waivers and exemptions from these programs, Congress appeared to solidify its conservation goals in the 2002 Farm Bill by appropriating funding of \$1 billion to the EQIP alone—more than twenty-five times the congressional funding earmarked for all Farm Bill conservation measures a decade earlier.¹⁵⁸

Despite Congress's recognition of the environmental devastation caused by commodity-driven agriculture, as illustrated by its attempts to mitigate these impacts, its Farm Bill conservation programs have achieved weak results in recent years. For example, the 2002 Farm Bill's Conservation Security Program had only been funded at \$489 million by 2006, which is a shortfall of nearly 83% from what Congress promised to set aside for that program in the 2002 bill.¹⁵⁹ Further, the federal government slashed the Farm Bill's combined conservation program budget by one-third in fiscal year 2005¹⁶⁰ despite the fact that conservation spending *before* these cuts only amounted to approximately 50% of the total conservation program budget in 1937, adjusted for inflation.¹⁶¹ Change does not appear to be on the horizon: less than 10% of the USDA's current budget is appropriated for conservation practices despite the fact that more than two billion tons of cropland soil is lost to erosion each year, which costs U.S. farmers more than \$44 billion annually in erosion prevention measures and lost productivity.¹⁶² Additional strain will be placed on our nation's

156. IMHOFF, *supra* note 6, at 135.

157. Cox, *supra* note 139, at 118.

158. *Id.* at 119.

159. IMHOFF, *supra* note 6, at 29.

160. *Id.*

161. Cain & Lovejoy, *supra* note 126.

162. IMHOFF, *supra* note 6, at 23, 129; JEREMY RIFKIN & CAROL GRUNEWALD RIFKIN, *VOTING GREEN: YOUR COMPLETE ENVIRONMENTAL GUIDE TO MAKING POLITICAL CHOICES IN THE 1990S* 149 (1992).

fragile environment over the next few years when nearly 400,000 Conservation Reserve Program contracts expire because many of those farmers will begin to grow commodity crops, namely corn for ethanol purposes, on lands that were previously protected through the CRP.¹⁶³

Why are these seemingly progressive conservation programs failing? This is a complex question but there are three answers that are quite instructive in shedding light on the failures of these programs: lack of funding, poor payment structure, and statutory failure. First, conservation programs are severely underfunded. As touched on above and as depicted in Figure 5, Congress appropriated twice as much money for agricultural conservation in 1937 as it did in 1999, adjusted for inflation.¹⁶⁴

Figure 5¹⁶⁵

Conservation Expenditures in Year 2000 U.S. Dollars

Year	1937	1999
Financial assistance	\$5,041,700,000	\$231,383,000
Technical assistance	\$261,863,000	\$799,578,000
Land reserve	\$17,655,000	\$1,711,163,000
TOTAL	\$5,321,218,000	\$2,742,124,000

Even more important, however, is the difference between 1937 spending and 1999 spending on direct financial assistance to farmers who wish to undertake conservation measures on their land.¹⁶⁶ When adjusted for inflation, conservation programs in 1937 were funded at twenty-two times the amount they are today, which means that farmers are only receiving 4% of what their

163. IMHOFF, *supra* note 6, at 127 (“CRP is at a critical junction with 400,000 CRP contracts on 28 million acres scheduled to expire between 2007 and 2010. USDA has undertaken an initiative to re-enroll and extend some of these contracts on a short-term basis. But it remains clear that millions of CRP acres will no longer be idled and instead be brought back into production in the coming decade.”).

164. Cain & Lovejoy, *supra* note 126.

165. *Id.*

166. *Id.*

counterparts in 1937 received for implementing similar conservation measures for similar purposes.¹⁶⁷ Not only were direct payments for conservation assistance much higher in the 1930s than they are today, but the agricultural sector was much more diverse at that time both in terms of crops and farm sizes as discussed in Part I.

What happened between 1937 and today that could explain the sharp decrease in conservation funding generally and direct farmer assistance for conservation programs specifically? As Part I alluded to, the agriculture lobby has increasingly garnered control of agricultural policy in the United States. In fact, the individuals in charge of creating and implementing the Farm Bill have little incentive to conserve land and natural resources through conservation programs because they have deep ties to agribusiness executives who value profit over environmental protection. Congressman Henry Bonilla (R-TX), for example, served as the chairman of the House Appropriations Subcommittee on Agriculture, which is quite influential in the Farm Bill drafting process.¹⁶⁸ However, it is important to note that Bonilla “raked in \$250,414 of his \$1.05 million in 2001 and 2002 [campaign] money from agribusiness” including large contributions from Cargill, ADM, and other corporate giants in the agricultural arena.¹⁶⁹ After the Farm Bill passes through the drafting process, which inherently means passing through pro-agribusiness politicians such as Bonilla, it is then up to the USDA for implementation.¹⁷⁰ On the implementation side, for example, Chuck Conner has served as either the USDA Deputy Secretary or Acting Secretary, where he is charged with implementing the Farm Bill and other agricultural policies, since May 2, 2005.¹⁷¹ However, it is difficult for someone like Conner to maintain a neutral stance on these issues because

167. *Id.*

168. Alan Guebert, *Follow the Money—or Henry Bonilla*, RODALE INST., June 20, 2003, <http://www.foodroutes.net/fwissue.jsp?item=61>.

169. *Id.* (reporting that in addition to Bonilla, agribusiness gave the other seven Republican members of the subcommittee an average campaign contribution of approximately \$85,000).

170. *Id.*

171. USDA, USDA Biographies: Charles F. Conner, Deputy Secretary of Agriculture, http://www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?contentid only=true&contented=bios_conner.xml (last visited Feb. 17, 2009).

Conner has worked for years as an agribusiness lobbyist representing the worst environmental offenders such as the Corn Refiners Association, which is dominated by ADM and Cargill.¹⁷² Until agricultural policymaking and implementation are no longer controlled by agribusiness and until Congress sufficiently funds conservation programs, conservation programs will continue to fail while agribusiness profits at the expense of the natural environment.

The second reason that the Farm Bill's conservation and environmental programs have failed is an ineffective structure whereby most conservation payments are still ultimately tied to subsidies that affect only large commercialized megafarms. Part I highlighted some of the problems of subsidizing the nation's agricultural industry with tax dollars: it distorts the market, it forces farms to grow environmentally unsound commodity crops on an ever-larger scale, it presses farms to grow larger and larger, and it only awards commodity subsidies to a small number of farms that tend to dominate the market. Similarly, most of the Farm Bill's conservation programs target megafarms that cultivate large amounts of commodity crops because these farms have the greatest potential to reduce environmental degradation because of their sheer size.¹⁷³ As part of these Farm Bill programs, large megafarms are offered tax dollars in the form of subsidies to protect the environment in which we all live.¹⁷⁴ Is this not something that these farms should be doing even in the absence of such subsidies? Unfortunately, these farms have become so dependent on commodity subsidies that they must obtain subsidies either by growing commodity crops on their land or by shifting cropland into conservation programs just to survive from year to year.¹⁷⁵ This

172. Tom Philpott, *ADM's Man at the USDA*, GRISTMILL, Sept. 21, 2007, <http://gristmill.grist.org/story/2007/9/20/144537/851>; Corn Refiners Ass'n, Member Companies, <http://www.corn.org/membercompanies.htm> (last visited Feb. 18, 2009) (noting that ADM and Cargill—two agribusiness giants that claimed combined revenues of approximately \$189.8 billion in 2008—are two of the seven companies comprising the Corn Refiners Association).

173. See Cain & Lovejoy, *supra* note 126.

174. *Id.*

175. See NAT'L PUB. POL'Y EDUC. COMMITTEE, THE 2007 FARM BILL: U.S. PRODUCER PREFERENCES FOR AGRICULTURAL, FOOD, AND PUBLIC POLICY v-viii (2007), available at http://www.ag.uidaho.edu/AERS/PDF/2007_farm_bill_us_producer_preferences.pdf (illustrating that many farmers support the current commodity subsidy program despite

is disheartening considering that many farmers, as discussed in detail in Part VI, cultivate their lands using sustainable agricultural methods solely for the protection of the ecological cycle that is vital to producing a high quality, nutritional crop.¹⁷⁶ These farmers, however, typically receive no federal funding despite their sustainable practices because the Farm Bill's conservation programs are targeted primarily towards megafarms.¹⁷⁷ Additionally, critics note that conservation programs pay commodity farmers to adopt certain practices regardless of the ecosystem service provided by the practice, which overprotects some aspects of the environment while severely underprotecting others.¹⁷⁸ This structure must be amended to address these concerns if Congress expects Farm Bill conservation efforts to be successful.

The third reason that the Farm Bill's conservation programs have failed is the lack of public involvement in the Farm Bill conservation program approval process. Every five years when the Farm Bill is approved, constituents have the opportunity to voice their opinions to their elected representatives. Despite the fact that many nonprofit organizations and members of the public are concerned about the environment, very little opposition to the Farm Bill existed in the past because of the illusion that other environmental programs are sufficient to protect the environment. Much of the public, including many environmentally conscious citizens, assume that our nation's various environmental laws such as the Clean Air Act, the Clean Water Act, and the Endangered Species Act apply equally to all industries to protect our shared natural environment. Unfortunately, this is untrue. The "[c]urrent laws regulating air pollution, water pollution, and the use of toxic chemicals implicitly or explicitly exempt all but the largest" farms

the fact that such a program undermines other values highly supported by the same farmers such as environmental protection, financial payments for small farms, compliance with WTO rules, and better food safety).

176. See, e.g., JAMES E. HORNE & MAURA MCDERMOTT, *THE NEXT GREEN REVOLUTION: ESSENTIAL STEPS TO A HEALTHY, SUSTAINABLE AGRICULTURE* 55 (2001); *infra* Part VI.

177. IMHOFF, *supra* note 6, at 59.

178. John M. Antle, *Payments for Ecosystem Services and U.S. Farm Policy*, in *THE 2007 FARM BILL AND BEYOND* 111, 112 (Bruce L. Gardner & Daniel A. Sumner eds., 2007), available at http://www.aei.org/docLib/20070516_Summary.pdf.

2009]

A ROTTEN SYSTEM

249

and concentrated animal feeding operations (CAFOs).¹⁷⁹ Figure 6 shows the major exemptions for farmers under federal environmental laws and the effects of those exemptions:

Figure 6¹⁸⁰

AREA	STATUTE	REGULATION	KEY EXEMPTIONS/ LIMITATIONS	OUTCOME
Water Pollution	Clean Water Act (CWA), Section 402	CWA 402 – Point sources must satisfy technology and water quality standards to obtain a permit to discharge pollutants into U.S. waters	“Point sources” include concentrated animal feedlot operations (CAFOs) in general, but exempt “agricultural stormwater discharges and return flows from irrigated agriculture”	Approximately 4100 CAFOs have permits All other farms may legally discharge animal wastes, fertilizers, and pesticides in U.S. waters without a permit
	CWA Sec. 404	Permits are required to fill wetlands	Excludes “normal farming” activities with incidental discharges of dredged material or fill material	In many cases, farmers can convert wetlands to crop production without a permit
	CWA Sec. 208, 303, and 319, and the Coastal Zone Management Act (CZMA)	States must develop plans to address pollution from nonpoint sources in waters failing to meet ambient quality standards	Federal funding and enforcement is very limited States determine which nonpoint sources to regulate	Some states exempt farmers while other states promote voluntary adoption of best management practices Direct regulation by state or local officials is rare
Air Pollution	Clean Air Act (CAA), Sec. 110	Each state must develop an enforceable plan to meet national ambient air quality standards or be regulated by the EPA	Regulations emphasize “major sources” that emit threshold levels of pollutants These thresholds implicitly or explicitly exclude farmers	Individual farms are not regulated by the CAA

179. Nicolai V. Kurminoff, *Public Policy Solutions to Environmental Externalities from Agriculture*, in THE 2007 FARM BILL AND BEYOND 115, 116 (Bruce L. Gardner & Daniel A. Sumner eds., 2007), available at http://www.aei.org/docLib/20070516_Summary.pdf.

180. *Id.* at 119 tbl.1.

AREA	STATUTE	REGULATION	KEY EXEMPTIONS/ LIMITATIONS	OUTCOME
Chemical Use	Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA)	Registration and determination of approved uses of chemicals, including who can apply these chemicals	Subject to EPA approval, states may register additional pesticide uses or temporarily use an unregistered pesticide to address pest emergencies	EPA determines which pesticides and fertilizers farmers can use, but special exemptions have been allowed for methyl bromide and others
	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Emergency Planning and Community Right-to-Know Act (EPCRA), and Resource Conservation and Recovery Act (RCRA)	Monitoring, reporting, and liability for storage and/or disposal of toxic chemicals	Exempts FIFRA registered pesticides and agricultural uses of fertilizers	EPA does not regulate, track, or report farmers' use of registered pesticides and fertilizers
Wildlife Habitat	Endangered Species Act (ESA) and Federal Migratory Bird Treaty Act (FMBTA)	Prohibits "takings" of threatened and endangered species and migratory birds	Unclear whether intent must be present in the case of poisoning of migratory birds	Legal actions have been taken against farmers and ranchers who "take" threatened and endangered species
Farm Bill	Swampbuster and Sodbuster	Farmers who convert wetlands or fail to apply conservation systems on highly erodible land cannot collect payments	Provisions apply only to a small share of current recipients of farm programs benefits Enforcement is questionable	Farmers receiving payments have an incentive to comply. Other farmers do not.

Despite the number of laws in place to protect our nation's environment, the agricultural sector has somehow managed to escape the majority of these legal and regulatory frameworks.¹⁸¹ As a result, the natural environment is suffering greatly. Although it is very important for policymakers to understand that the current

181. *Id.*

laws fail to sufficiently regulate farming in the United States, it is just as necessary for each and every American to recognize the harmful impacts of commercialized commodity farming on the environment so that the public can collectively utilize both its voting power and its purchasing power to effect positive change in the environmental arena. If and when the public maximizes its influence through these means, conservation will once again become a centerpiece of U.S. agricultural policy and the Farm Bill will serve one of the fundamental purposes anticipated by President Roosevelt and Congress more than a half-century ago.

III. THE ENVIRONMENTAL IMPACTS OF SUBSIDIZED COMMERCIAL AGRICULTURE

While the conservation programs discussed in Part II were concerned primarily with on-farm conservation measures, Part III focuses predominantly on the off-farm environmental impacts of a subsidized industrial agricultural system. Unquestionably, our current industrial agricultural system would be unable to operate without large inputs of water, fertilizers, pesticides, and fossil fuels. Thus, it is important to start with a discussion of the Green Revolution because of the structural change that this transformation brought to American agriculture by making these inputs mainstream. What started as Norman Borlaug's research project in Mexico in 1943 became the U.S. agricultural standard within decades.¹⁸² Borlaug bred "high-yielding varieties" of wheat, rice, corn, and other grains to produce much larger crop yields than had been previously attained.¹⁸³ This was made possible because selective breeding allowed the chosen grains to mature more quickly and to adapt to year-round growing seasons.¹⁸⁴ These hybridized crops generally accomplished Borlaug's goal of creating sufficient crop yield growth over time to outpace population growth, which led to his Nobel Peace Prize in 1970.¹⁸⁵ Attaining constant increases in crop yields was an historical achievement, yet

182. Norman Borlaug, Nobel Lecture (Dec. 11, 1970), (transcript available at http://nobelprize.org/nobel_prizes/peace/laureates/1970/borlaug-lecture.html).

183. INT'L FOOD POL'Y RES. INST. (IFPRI), GREEN REVOLUTION: CURSE OR BLESSING 2 (2002), <http://www.ifpri.org/pubs/ib/ib11.pdf>.

184. *Id.*

185. Borlaug, *supra* note 182.

there is much more to the story of the Green Revolution that is often missing from the history books.

Improving the yield of a crop is not simply a function of breeding seeds and planting those seeds.¹⁸⁶ In fact, these hybridized plants were only successful in creating higher yields because of their saturation with water, chemical fertilizers, toxic pesticides, and ultimately fossil fuels.¹⁸⁷ Due to the Green Revolution's heavy dependence on these items, the American agricultural landscape has been forever changed. Rather than consisting of rural communities of similarly sized crop-diverse farms like those that existed prior to the 1950s, American agriculture is today an industrialized system whereby water, chemicals, and fossil fuels are converted into cheap commodity crops. Not coincidentally, the most significant environmental impacts from industrial commodity crop agriculture are impacts to the water, land, wildlife, and air derived from agriculture's heavy dependence on inputs that affect these facets of the environment. The immense environmental impacts of this vast structural shift are discussed in detail below.

A. *The Effects of Commodity Agriculture on Our Nation's Water*

Water is an appropriate starting point for discussion since consumption of water is essential for human survival. Americans expect sanitary drinking water at the flick of a faucet. In addition to drinking water, our society is dependent on water for household uses as well as industrial and manufacturing uses. As a basic element of our daily lives, water is easily taken for granted by the American public because of its apparent omnipresence. This perspective is changing, however, as our nation struggles both with the quantity and quality of our water resources. Since the Green Revolution began, commercialized commodity crop agriculture has become responsible for a large portion of both the reductions in quantity and in quality of the nation's water.¹⁸⁸ Quick steps must

186. IFPRI, *supra* note 183.

187. PETER ROSSET, INST. FOR FOOD & DEV. POL'Y (IFDP), LESSONS FROM THE GREEN REVOLUTION, Apr. 8, 2000, <http://www.foodfirst.org/media/opeds/2000/4-greenrev.html>.

188. IFPRI, *supra* note 183 ("The Green Revolution has also been widely criticized for causing environmental damage. . . . Groundwater levels are retreating in areas where

be taken to alter our agricultural policies and practices or the growing numbers of disputes over water scarcity will become commonplace and could lead to severe societal instability and deleterious health consequences.¹⁸⁹

Estimates indicate that total water use in the United States exceeds 400 billion gallons each day.¹⁹⁰ Agricultural irrigation is by far the largest use of freshwater and accounts for more than one-third of all U.S. water usage at a withdrawal rate of more than 135 billion gallons a day.¹⁹¹ With the Green Revolution and its emphasis on increased crop yields came extremely water-intensive agricultural practices requiring large-scale irrigation systems.¹⁹² These practices have gradually been incorporated into American agricultural policy because of the profitability of high-yield Green Revolution crops for megafarms and food processors. To prevent future water scarcity from halting our farming system, agricultural policies must be tailored to encourage low-water farming strategies. Current policies instead favor industrialized commodity crop farming, which requires constant watering on less than ideal agricultural lands.¹⁹³ Rather than only cultivating the prime agricultural soils near lush rivers, our current Farm Bill subsidies tempt farmers to grow hybridized corn, soybeans, and other commodity crops many miles from rivers and other water sources where farms could not survive financially in the absence of federal

more water is being pumped for irrigation than can be replenished by the rains.”); SUSAN S. HUTSON ET AL., U.S. GEOLOGICAL SURVEY (USGS), ESTIMATED USE OF WATER IN THE UNITED STATES IN 2000 (2004), *available at* <http://pubs.usgs.gov/circ/2004/circ1268/> (“Irrigation remained the largest use of freshwater in the United States and totaled 137 [billion gallons per day] for 2000. Since 1950, irrigation has accounted for about 65 percent of total water withdrawals, excluding those for thermoelectric power. . . . [T]he percentage of total irrigation withdrawals from ground water has continued to increase, from 23 percent in 1950 to 42 percent in 2000. Total irrigation withdrawals were 2 percent more for 2000 than for 1995, because of a 16-percent increase in ground-water withdrawals and a small decrease in surface-water withdrawals.”); *see also infra* text accompanying notes 195-199.

189. *See, e.g.*, Global Pol’y Forum, Water in Conflict, <http://www.globalpolicy.org/security/natres/waterindex.htm> (last visited June 10, 2008) (discussing past, present, and potential future water disputes, and noting increases in violence and public health crises when water disputes occur).

190. HUTSON, *supra* note 188.

191. *Id.*

192. Rosset, *supra* note 187.

193. *Id.*

subsidies.¹⁹⁴ The result is mass diversion of water across miles and miles of land, which results in unneeded water usage to create an immense surplus of hybridized commodity crops. Because of agriculture's large role in American water consumption, farming is responsible, at least in part, for the increasing number of water disputes arising in the United States.

Since the summer of 2007, for example, the states of Georgia, Florida, and Alabama have been embroiled in a bitter conflict over the allocation of water in the Apalachicola-Chattahoochee-Flint River Basin.¹⁹⁵ Although this conflict has existed for decades, the increasing scarcity of water in these states has resulted in a sense of urgency not previously observed in this debate.¹⁹⁶ The two greatest factors in this water dispute are "increased public supply demands associated with the Atlanta region and *increased agricultural withdrawals*."¹⁹⁷ As this example illustrates, water scarcity is no longer an issue only for the western United States. A primary reason for this change is the Green Revolution's introduction of hybridized crops that are heavily dependent on water.¹⁹⁸ Thus, water shortages are becoming more frequent as our freshwater resources are stretched thinner and thinner by the year; in fact, at least 36 states—most of which are outside of traditionally dry regions of the country—are anticipating water shortages in the next five years.¹⁹⁹ In an effort to prevent water scarcity and the inevitable societal fallout, it is imperative that our national leaders target the agricultural industry and mandate much better water use practices in order to conserve the precious water resources that are still available after decades of commercialized farming have brought many of our streams and rivers to a trickle.

194. *Id.*

195. See J.B. Ruhl, *Water Wars, Eastern Style: Divying Up the Apalachicola-Chattahoochee-Flint River Basin*, J. CONTEMP. WATER RES. & EDUC., 47 (2005), available at http://www.ucowr.siu.edu/updates/131/10_ruhl.pdf.

196. *Drought Issues in the Southeast: Hearing Before the H. Transp. & Infrastructure Comm. and the Subcomm. on Water Resources and the Env't*, 110th Cong. (2008) (testimony of Sam D. Hamilton, Se. Reg. Dir., U.S. Fish and Wildlife Serv.), available at <http://www.fws.gov/laws/Testimony/110th/2008/HamiltonSoutheastDrought.html>.

197. *Id.* (emphasis added).

198. Rosset, *supra* note 187.

199. E.g., David Gutierrez, *At Least 36 States Face Water Shortage*, NATURAL NEWS, Apr. 15, 2008, available at <http://www.alternet.org/water/82378/>.

As dire as water quantity is, so too is water quality. Unlike growers implementing sustainable agricultural practices, commodity crop farmers use a volatile cocktail of toxic chemical fertilizers to grow corn, soybeans, wheat, cotton, and rice.²⁰⁰ This is an outgrowth of the Green Revolution, where higher crop yields resulted from hybridized crops. These higher crop yields only existed, however, with inputs of these potent fertilizers.²⁰¹ These fertilizers were created as byproducts of military tinkering and are typically composed of high percentages of phosphorus and ammonium nitrate, which is the principal ingredient used in explosives.²⁰² These “[c]hemical fertilizers circumvent the naturally occurring process of ‘fixing’ nitrogen to the soil by combining nitrogen and hydrogen gases under immense heat and pressure [with the use of fossil fuels] in the presence of a catalyst.”²⁰³ Although fertilizers have made agriculture much more effective in terms of yields, there are serious drawbacks as seen by the following environmental consequences of fertilizers.²⁰⁴

For example, much of the fertilizer applied to agricultural fields ends up as runoff that is leached into streams and rivers.²⁰⁵ Not only do these toxic chemicals ultimately move downstream implicating public health concerns, but these fertilizers also pollute waterbodies and harm aquatic species and fishing communities that rely on those waterbodies.²⁰⁶ Eutrophication, a condition of too much nitrogen or phosphorus, is a serious

200. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 41.

201. IFPRI, *supra* note 183.

202. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 41.

203. Jodi S. Windham, *Putting Your Money Where Your Mouth Is: Perverse Food Subsidies, Social Responsibility & America’s 2007 Farm Bill*, 31 *ENVIRONS ENVTL. L. & POL’Y J.* 1, 8 (2007).

204. Fertilizers have dramatically increased yields from the Green Revolution onward. There are, however, less environmentally damaging agricultural alternatives that do not require fertilizers but have attained yields equivalent to or higher than conventional hybridized crop yields in recent years. These sustainable farming systems will be discussed at length in Part VI.

205. *See, e.g.*, ORG. FOR ECON. CO-OP. & DEV., *ENVIRONMENTALLY HARMFUL SUBSIDIES: POLICY ISSUES AND CHALLENGES* (2003); JASON CLAY, *WORLD AGRICULTURE AND THE ENVIRONMENT: A COMMODITY-BY-COMMODITY GUIDE TO IMPACTS AND PRACTICES* (2004).

206. R. Eugene Turner et al., *Corn Belt Landscapes and Hypoxia of the Gulf of Mexico*, in *FROM THE CORN BELT TO THE GULF: SOCIETAL AND ENVIRONMENTAL IMPLICATIONS OF ALTERNATIVE AGRICULTURAL FUTURES* 10-27 (Joan Iverson Nassauer et al. eds., 2007).

problem that occurs when rising concentrations of these chemical nutrients result in increased algal growth.²⁰⁷ As this algae dies, it takes oxygen out of the water for its process of decomposition.²⁰⁸ Therefore, as more algae is created from increased chemical nutrients in the water, less oxygen is available for phytoplankton and other organisms in the aquatic ecosystem.²⁰⁹ When the oxygen slips below a certain level, the water takes on the effects of hypoxia, or a shortage of oxygen.²¹⁰ A hypoxic area quickly becomes a “dead zone” because fish and other mobile organisms leave due to the lack of oxygen and all other organisms will die off and cause a food chain collapse.²¹¹

The largest example of hypoxia in the United States is the Gulf of Mexico Dead Zone, which is now longer than the distance between Washington, D.C. and Hartford, Connecticut.²¹² This Dead Zone is largely the result of commodity crop production and fertilizer application in the Corn Belt of the United States near the Mississippi River and other rivers that ultimately discharge into the Gulf of Mexico.²¹³ Approximately two-thirds of the nitrogen entering the Gulf comes from industrial agricultural practices in the form of fertilizers or manure runoff.²¹⁴ The USDA itself acknowledges the gravity of this problem and recommends “induc[ing] changes in the application and management of nitrogen fertilizer on farm fields.”²¹⁵ However, until such changes are put into practice, the impacts to the Gulf of Mexico Dead Zone and others like it will continue to be astonishing: the aquatic ecosystems will be devastated, local residents will have difficulty securing seafood for personal consumption, and fishing communities will suffer as fish catches dwindle.²¹⁶

207. *Id.*

208. *Id.*

209. *Id.* at 10.

210. *Id.*

211. *Id.*

212. *Id.* at 11.

213. *Id.*

214. USDA, Econ. Res. Serv., “Dead Zone” in the Gulf: Addressing Agriculture Contribution, <http://www.ers.usda.gov/amberwaves/november03/Findings/deadzone.htm> (last visited June 10, 2008).

215. *Id.*

216. *See, e.g.*, Turner, *supra* note 206, at 10-28.

Aquatic ecosystems and waterbodies are further degraded by sediment. When land is tilled, soil is loosened, and much of that loose topsoil is eventually carried into streams and rivers by rain or irrigation systems.²¹⁷ This sediment causes numerous problems for aquatic species that live, eat, and reproduce in lakes, rivers, and estuaries downstream of an agricultural area.²¹⁸ Specific concerns with sedimentation include more shallow streambeds and thus less water for fish and other organisms, “lost reservoir capacity, increased channel and reservoir dredging, increased water treatment, reduced recreational activities, and increased flood[ing].”²¹⁹ Although the public generally does not think of soil as a pollutant, “[a]gricultural cropland sediment is recognized as the largest nonpoint water pollutant²²⁰ by volume in the United States.”²²¹ In fact, according to a 1974 study, more than two billion tons of sediment enter our nation’s water each year.²²² In the mid-1980s the annual cost of this sediment damage was estimated at \$4-5 billion and is likely much higher today due to inflation.²²³ Although sustainable farming practices can prevent or at least minimize soil erosion and soil runoff into our nation’s water, current Farm Bill policies do not generally encourage such practices. Starting with the Green Revolution, the American agricultural system favored large-scale monocultures of hybridized

217. Alfred M. Duda, *Environmental and Economic Damage Caused by Sediment from Agricultural Nonpoint Sources*, 21 J. AM. WATER RES. BULL. 225, 225-34 (1985).

218. *Id.*

219. William Boggess et al., *Sediment Damage and Farm Production Costs: A Multiple-Objective Analysis*, 2 N. CENT. J. AGRIC. ECON. 107 (1980).

220. U.S. EPA, What is Nonpoint Source Pollution: Questions and Answers, <http://www.epa.gov/owow/nps/qa.html> (last visited May 8, 2008) (“Nonpoint source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water.” Nonpoint source pollutants include “excess fertilizers, herbicides, and insecticides from agricultural lands” in addition to “sediment from improperly managed crop and forest lands.”).

221. Boggess et al., *supra* note 219.

222. *Id.*

223. PRESIDENT’S COUNCIL ON SUSTAINABLE DEV., SUSTAINABLE AGRICULTURE: TASK FORCE REPORT 1 (1997), available at http://clinton2.nara.gov/PCSD/Publications/TF_Reports/ag-top.html.

crops to maximize yields and profits.²²⁴ These monocultures, with no diversity of crops to hold the soil in place, have played a large part in the severe sedimentation problem. If future sediment damage is to be limited in U.S. waters, these monocultures must transition into well-planned polycultures.

Another problem with commercialized farming of commodity crops is the use, and often overuse, of pesticides. With the Green Revolution, chemical pesticides became essential for reaching the maximum yields of hybridized crops.²²⁵ Pesticides, the general term for both insecticides²²⁶ and herbicides,²²⁷ are used to combat pests that commonly disturb agricultural crops. There are more than 1600 pesticides currently available on the market, some of which were developed “as nerve gases during the Second World War” and are unsurprisingly very toxic to the insects and plants they target and have the “potential to kill birds and other wildlife.”²²⁸ For years, “[t]he movement of pesticides into surface and groundwater” has contaminated human drinking water and aquatic ecosystems.²²⁹ Further, “[t]he sediments dredged from U.S. waterways are often so heavily contaminated with pesticides that there may be problems in disposing of them on land.”²³⁰ Agricultural pesticide use has led to “loss of fish productivity in contaminated freshwater such as the Great Lakes, losses of crustacea that provide human food in contaminated estuaries, and

224. Rossett, *supra* note 187.

225. *Id.*

226. See William E. Palmer, Peter T. Bromley, and Rick L. Brandenburg, *Wildlife and Pesticides—Peanuts*, N.C. STATE UNIV. COOP. EXT. SERV., http://ipm.ncsu.edu/wildlife/peanuts_wildlife.html. Insecticides are targeted to kill unwanted insect species while leaving the desired crop relatively unharmed. In practice, however, insecticides kill unwanted insects and also drift into nearby wildlife habitats, thus endangering larger animals. Wildlife deaths are known to occur more frequently from insecticide use when the insecticide is applied in intervals shorter than ten days. *Id.*

227. See Clive A. Edwards, *The Impact of Pesticides on the Environment*, in *THE PESTICIDE QUESTION: ENVIRONMENT, ECONOMICS, AND ETHICS* 13, 15 (David Pimentel & Hugh Lehman eds., 1993).

228. *Id.*; INST. OF MED., *VETERANS AND AGENT ORANGE: HEALTH EFFECTS OF HERBICIDES USED IN VIETNAM* (1994), available at <http://www.nap.edu/openbook.php?isbn=0309048877>. Herbicides are targeted to kill unwanted plant species while leaving the desired crop relatively unharmed. These chemicals are quite dangerous, however, as seen with the use of the defoliant herbicide Agent Orange during the Vietnam War and the severe health effects of such use on humans and animals. *Id.*

229. Edwards, *supra* note 227, at 39.

230. *Id.*

. . . decreased pollination” as bees and other pollinating insects are accidentally killed by the pesticides.²³¹ The human health effects of pesticide use will be examined in more detail in Part V, but it is clear that the environmental toll of heavy pesticide use is contaminating our nation’s water resources and endangering our invaluable aquatic ecosystems.

The last water-centered concern of commercialized agriculture is manure. Unlike the three water pollutants discussed above, animal waste does not predominantly derive from farms themselves. Instead, most of the untreated animal waste comes from concentrated animal feeding operations (CAFOs), which are included in this Article as a type of megafarm because: (1) CAFOs came into existence alongside the emergence of commodity crop megafarms, (2) CAFOs are only possible because of the sheer surplus of corn grown on American farmland that can feed such large groups of animals for meat production, and (3) CAFOs are usually regulated through the Farm Bill and other agricultural policies.²³² Although the environmental degradation solely from CAFOs could fill an entire article, I will provide a brief glance at how corn-dependent CAFOs foul America’s waters.

Prior to the Green Revolution, farms were smaller on average and utilized on-farm livestock manure for fertilization purposes.²³³ Additionally, few large-scale livestock operations existed because farms preferred having livestock on-site for diverse uses and large operations were nearly impossible because of the land required to feed livestock sufficient amounts of grass.²³⁴ In today’s industrial agriculture system, things have changed greatly as a result of the invention of hybridized grains such as corn that maximize yields when grown in vast monocultures.²³⁵ In fact, an astonishing 66% of the current corn crop in the U.S., which is grown with water-polluting fertilizers and pesticides, is fed to livestock in CAFOs solely for the production of meat.²³⁶ By feeding these animals corn instead of grass, livestock owners have been able to transition to

231. *Id.* at 40.

232. *See* IMHOFF, *supra* note 6, at 51.

233. *Id.* at 38.

234. *See id.*

235. ROSSET, *supra* note 187.

236. RUNGE, *supra* note 114.

large CAFOs because there is less need for open land when subsidized corn is readily available.²³⁷ Many of the larger CAFOs have thousands of animals in very small quarters, which creates a large concentration of excrement.²³⁸ Due to poor sanitation and the lack of reinforced waste lagoons, large volumes of waste often spill into the local rivers during rainstorms, creating a public health emergency.²³⁹ For example, a waste lagoon burst in 1995 in North Carolina, releasing 35 million gallons of hog excrement sludge into the New River, killing nearly ten million fish, and endangering North Carolina's residents.²⁴⁰ Despite spills like this, the 2002 Farm Bill granted subsidies to corporate feedlots authorizing the use of tax dollars to pay for 75% of the building costs for animal sewage facilities.²⁴¹ Although Congress's recognition of the animal waste problem is welcome, it is unreasonable for American tax dollars to pay for the construction of animal waste facilities for large feedlots—something that should be the responsibility of a feedlot operator *prior* to construction of such a large facility.²⁴² Instead of protecting the environment with these subsidies, our government is diverting “precious Farm Bill conservation dollars . . . to build and fortify manure lagoons on corporate feedlots.”²⁴³ This backward system must be changed if our nation plans to protect both our valuable waters and the public's health.

Based on the foregoing discussion, it is critical that our national agricultural policy quickly respond to the devastating environmental consequences of industrial commodity crop agriculture. More effective farming practices exist, such as contour farming²⁴⁴ and on-farm manure use,²⁴⁵ that have the ability to

237. See, e.g., H. STEINFELD ET AL., *LIVESTOCK'S LONG SHADOW: ENVIRONMENTAL ISSUES AND OPTIONS* (2006).

238. *Id.*

239. *Id.*

240. Laura Orlando, *McFarms Go Hog Wild*, *DOLLARS & SENSE*, July-Aug. 1998, available at http://www.thirdworldtraveler.com/Environment/McFarm_HogWild.html.

241. IMHOFF, *supra* note 6, at 51.

242. *Id.*

243. *Id.*

244. REBECCA L. GOLDMAN ET AL., *WOODS INST. FOR THE ENV'T, STAN. UNIV., MANAGING AGRICULTURAL LANDS FOR ECOSYSTEM SERVICES 2*, http://woods.stanford.edu/docs/farmland/Managing_US_Agricultural_Lands_for_Ecosystem_

achieve high crop yields without the use of harmful fertilizers and pesticides while simultaneously preventing sedimentation from runoff and controlling animal waste. Until practices of this sort are incorporated into a unified national policy, our nation's waters and the 300 million Americans who rely on these waters will continue to pay the environmental costs while agribusiness muddies our streams and rivers with pollution.

B. *The Effects of Commodity Agriculture on America's Land and Soil*

Of the 2.3 billion acres of land in the United States, more than 1.03 billion acres are croplands, pastures, or rangelands used and managed by our nation's farmers and ranchers.²⁴⁶ Cropland alone makes up 442 million acres, which is one out of every five acres of land in the United States.²⁴⁷ As discussed earlier, agricultural policies stemming from the Green Revolution have resulted in increased farming on marginal lands, which inherently leads to high levels of soil erosion.²⁴⁸ In addition to soil problems associated with cultivation of highly erodible lands, soil erosion has resulted from the disappearance of perennial agriculture²⁴⁹ and the rise of

Services.pdf (last visited June 12, 2008) (noting that contour farming "reduces the rate of runoff from agricultural systems by growing crops at 90-degree angles to the water flow. It promotes a number of ecosystem services, including fertile soils, water purification, and flood mitigation").

245. IMHOFF, *supra* note 6, at 51; Gary Gardner, *Recycling Organic Waste*, in STATE OF THE WORLD: AN URBAN PLANET (Linda Starke ed., 1998) (Composted manure, which farmers relied heavily on before the Green Revolution, allows nutrients to be returned to the soil and is essential for "crop production to remain abundant." Today's organic agricultural systems also rely on composted manure, which "can be used to replenish soils." Unfortunately, "the common practice in conventional agriculture is to rely primarily on manufactured fertilizer. . . . The acceptance of the ancient appreciation of organic material will be an important step toward building sustainable cities and farms.").

246. CHICAGO COUNCIL, *supra* note 87, at 49; PRESIDENT'S COUNCIL ON SUSTAINABLE DEVELOPMENT, *supra* note 223, at 6.

247. CHICAGO COUNCIL, *supra* note 87, at 49 fig.9 (quoting USDA Economic Research Service) (U.S. land use breaks down as follows: 25.9% pasture and range grassland, 28.8% forests, 19.5% cropland, 13.1% special uses such as parks, 10.0% miscellaneous (e.g. deserts/barren lands), and 2.7% urban)).

248. IMHOFF, *supra* note 6, at 23.

249. Craig Elevitch, Leaves to Live By: Perennial Leaf Vegetables, http://www.agroforestry.net/pubs/perennial_vegetables.html (last visited Feb. 11, 2009) (noting that a few perennial vegetables that are not only nutritious but also lacking on our grocery store shelves because annuals such as corn and wheat have generally reduced the number of available perennials: asparagus, artichokes, rhubarb, water cress, chives, and some sweet potatoes). See also Anne Simon Moffat, *Agricultural Research: Higher Yielding Perennials*

single-crop monoculture.²⁵⁰ Because the Farm Bill encourages the maximum production of commodity crops, many farmers grow corn and other subsidized annual crops without rotating in a valuable mix of non-commodity crops and perennials that can bolster the health of the land by returning critical nutrients to the soil and preventing erosion.²⁵¹ Further, the constant survival mode created by the Farm Bill forces farmers to cultivate their fields without opting for fallow seasons to rest the fields. In a matter of years, these devastating practices can render once profitable cropland completely worthless.

Furthermore, better soil management practices are needed to sequester carbon. In addition to the loss of organic matter when erosion occurs from poor tilling methods, carbon dioxide is also released.²⁵² Soil absorbs and stores carbon dioxide.²⁵³ When soil is then tilled, especially by large machines that rip at the soil, pebbles, and other underground materials, the tilled organic matter in the soil absorbs oxygen from the air.²⁵⁴ Once exposed to oxygen, this organic matter decomposes and releases carbon dioxide into the atmosphere.²⁵⁵ When erosion occurs, it carries the already decomposing topsoil away and exposes a new layer of topsoil to the decomposition process.²⁵⁶ Soil scientists note that “accelerated erosion reduces the ecosystem carbon pool, accentuates carbon emissions, and must be controlled

Point the Way to New Crops, 29 SCIENCE 1469 (1996), available at <http://www.sciencemag.org/cgi/content/summary/274/5292/1469?ck=nck>. This article describes how perennial agriculture allows plants with roots that grow each year to grow as part of the normal agricultural cycle. Annual agriculture, such as corn or soybean cultivation, requires planting of seeds yearly and leads to the elimination of the rooted perennial plants that have evolved as the most efficient and productive crops for a specific soil type.
Id.

250. *Id.*

251. See POLLAN, *THE OMNIVORE'S DILEMMA*, *supra* note 57, at 198 (“The benefits of a food chain rooted in a perennial agriculture are so many and so great.” A project in Kansas is looking into these benefits through a “long-term project to ‘perennialize’ many of our principal grain crops (including corn) and then grow them in polycultures,” which maximizes the environmental protection benefits such as reducing greenhouse gas emissions.)

252. Rattan Lal et al., *Ecology: Managing Soil Carbon*, 304 SCIENCE 393 (2004).

253. *Id.*

254. *Id.*

255. *Id.*

256. *Id.*

effectively.²⁵⁷ Since the atmospheric levels of carbon dioxide are setting historic records with dangerous climatic consequences,²⁵⁸ it is important to require more sustainable farming methods that can store carbon in the soil while also using the soil productively for cultivation.²⁵⁹ These methods exist in the form of no-till farming, cover cropping, crop rotation, and residue mulching, but are almost nonexistent in the bulk of American farming that is solely focused on maximizing commodity crop production.²⁶⁰ In fact, studies have shown that these methods can likely sequester four to six times as much soil carbon as the typical conventional system used in the United States today.²⁶¹ As will be discussed in Part VI, these sustainable farm management practices have much promise to reshape our nation's agricultural system in a more environmentally sensitive way. To do so, however, will require our policymakers to align the Farm Bill with the nation's environmental and public health interests before we are left with a barren wasteland of once productive fields.

C. *The Effects of Commodity Agriculture on Our Nation's Biodiversity and Wildlife Habitat*

Our nation is experiencing an incredible downward trend in wildlife habitat and biodiversity as increased agriculture leads to habitat fragmentation, toxic poisoning, species decline, and occasional species disappearance.²⁶² In fact, "84% of all endangered or threatened plants and animal species were listed in

257. Rattan Lal et al., *Response to Comments on Managing Soil Carbon*, 305 SCIENCE 1567 (2004), available at <http://www.sciencemag.org/cgi/content/full/305/5690/1567d>.

258. See, e.g., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), FOURTH ASSESSMENT REPORT (2007), available at <http://www.ipcc.ch/ipccreports/ar4-syr.htm>.

259. David Pimentel et al., *Environmental, Energetic, and Economic Comparisons of Organic and Conventional Farming Systems*, 55 BIOSCIENCE 573, 573 (2005).

260. *Id.*; Lal, *supra* note 252; see also *infra*.

261. FOOD & AGRIC. ORG. OF THE UNITED NATIONS (FAO), LOW GREENHOUSE GAS AGRICULTURE: MITIGATION AND ADAPTATION POTENTIAL OF SUSTAINABLE FARMING SYSTEMS 7 (2008), available at <ftp://ftp.fao.org/docrep/fao/010/ai781e/ai781e00.pdf>.

262. See POLLAN, THE OMNIVORE'S DILEMMA, *supra* note 57, at 47. This article points out that industrialized agriculture is working "to the detriment of countless [species as, among other things, fertilizers and pesticides] . . . poison[] the marine ecosystem. . . . By fertilizing the world, we alter the planet's composition of species and shrink its biodiversity." *Id.*

part due to agricultural activities.”²⁶³ Hundreds of the nearly 1300 species listed as threatened or endangered were listed solely because of pesticide use.²⁶⁴ Countless other species owe their listing to agriculture-driven habitat destruction and fragmentation that can make species survival nearly impossible.²⁶⁵ Regardless of the farming-based reason for such a listing, it is important to recognize that human agriculture affects wildlife and biodiversity since we are all part of the same interdependent ecosystem.

One biodiversity problem posed by industrial agriculture is the loss of wetlands, which are vital habitats for many different types of wildlife.²⁶⁶ Large farms often convert wetlands and wildlife habitat to croplands for commodity crop production.²⁶⁷ This conversion “is a classic market failure in which the costs to the farmer of converting the land to cropland do not include the costs imposed on society of reduced wildlife populations and reduced ecological services provided by the land.”²⁶⁸ As wetlands dwindle, so too do the important services provided by these ecosystems.²⁶⁹ In fact, “the lower 48 states had an estimated 220 million acres of wetlands and streams in precolonial times, but 115 million acres of them had been destroyed by 1997.”²⁷⁰ These wetlands and “creek corridors are probably the single most important wildlife linkages, as they connect all other habitats and lie at the heart of an ecosystem.”²⁷¹ Further, “over 80% of species use aquatic habitats at some point in their life cycle.”²⁷² Although modest progress was made in the past decade to restore wetlands under the Farm Bill’s Wetlands Reserve

263. Defenders of Wildlife, Comments for the Development of USDA Recommendations for the 2007 Farm Bill, 70 Fed. Reg. 35,221 (June 17, 2005), at 1, available at <http://familyfarmer.org/sections/pdf/farmbillforum.pdf>.

264. BRIAN LITMANS & JEFF MILLER, CTR. FOR BIOLOGICAL DIVERSITY, *SILENT SPRING REVISITED: PESTICIDE USE AND ENDANGERED SPECIES* (2004), available at http://www.biologicaldiversity.org/publications/papers/Silent_Spring_revisited.pdf.

265. *Id.*

266. Tim T. Phipps, *Commercial Agriculture and the Environment: An Evolutionary Perspective*, 20 NE. J. AGRIC. & RES. ECON. 143, 147 (1991).

267. *Id.*

268. *Id.*

269. IMHOFF, *supra* note 6, at 49 n.46.

270. John Heilprin, *U.S. Reports an Increase in Wetland Acreage: Bush Administration Figures are Disputed as Being Misleading*, S.F. CHRON., Mar. 31, 2006, at A-2.

271. IMHOFF, *supra* note 6, at 49 n.46.

272. *Id.*

Program,²⁷³ more substantial steps must be taken in the Farm Bill to implement strategies to protect existing wetlands by prohibiting conversion to cropland and to restore former wetlands to enhance the ecosystem filtering capabilities of the nation's wetlands system.

Further, as a consequence of both the Green Revolution's dependence on chemicals and Earl Butz's "fencerow to fencerow" planting strategy, plant and animal species are finding it more difficult to survive the onslaught of agricultural insecticides, herbicides, and fertilizers while also attempting to live in ever-smaller and more fragmented habitats. The impact of pesticides and other chemicals on aquatic species was discussed above, but these toxic substances also dramatically affect land species by impacting their rates of reproduction and potentially leading to death.²⁷⁴ Agricultural pesticides have led to a number of animal deaths in species that are not typically thought of as threatened by pesticides, namely eagles, hawks, owls, ducks, geese, and fish at all levels of the aquatic food chain.²⁷⁵ As more marginal lands are converted to commodity crop production, pieces of wildlife habitat are siphoned off chunk by chunk. Survival by dodging pesticides is made even more difficult for animal species as habitat modification fragments their home range, which limits the number of animals of reproductive age and can thus threaten the viability of the species.²⁷⁶

Although many species could be used to demonstrate the severe impacts to wildlife from agricultural chemicals, wetland conversion, and habitat fragmentation, the discussion will now center on the honeybee because of the key role that this species plays in our food production cycle. Despite the honeybee's importance, there is an apparent lack of public concern regarding the potential collapse of the honeybee species because of the attenuated nature of our current food production system. More than 25% of the food items eaten in the United States depend on pollination including apples, broccoli, almonds, onions, pears,

273. *Id.* at 125 ("Wetlands increased annually at a rate of nearly 70,000 acres per year between 1997 and 2003.").

274. *See* Edwards, *supra* note 227, at 38-39.

275. *Id.* at 38.

276. *See* Luke George & David S. Dobkin, *Introduction: Habitat Fragmentation and Western Birds*, 25 *STUDIES IN AVIAN BIOLOGY* NO. 4 (2002).

carrots, blueberries, and over one hundred other crops.²⁷⁷ These “insect-pollinated crops contributed an estimated \$20 billion to the U.S. economy in 2000,” and the value would reach nearly \$40 billion if products such as milk and beef, which rely indirectly on pollinated crops such as alfalfa, were included in the calculation.²⁷⁸ The main pollinator in the United States, the European honeybee, declined by more than 50% between World War II and 2004 and this “Colony Collapse Disorder” hit new records in 2006 and 2007 as some beekeepers reported hive losses of up to 90%.²⁷⁹ Overapplication of ever-stronger pesticides is one of the four most likely rationales proposed by the EPA to explain the near disappearance of this extremely important pollinating species.²⁸⁰ Evidence shows that the honeybee is not alone in its rapid decline: “the continent’s thousands of native pollinators have suffered from the fragmentation of habitats and the extensive use of pesticides.”²⁸¹ It is time for our policymakers to recognize the significance of biodiversity and the interconnection of wildlife and biodiversity with our agricultural food system. These species are important not only for ecosystem stability, but they are also instrumental in providing a secure and diverse food supply. Thus, our national agricultural policies must shift from protecting megafarms and their profit margins to protecting species, biodiversity, and a well-maintained ecosystem that benefits humans, plants, and animals alike.

D. *The Effects of Commodity Agriculture on Our Nation’s Air Quality*

The hybridized crops used in American farming since the Green Revolution are very dependent on large amounts of fossil

277. IMHOFF, *supra* note 6, at 132; USDA, Colony Collapse Disorder: A Complex Buzz, available at <http://www.ars.usda.gov/is/AR/archive/may08/colony0508.htm> (last visited Feb. 24, 2009) (explaining that honeybees alone “add[] more than \$15 billion in value to about 130 crops . . . [including] high-value specialty crops like berries, nuts, fruits, and vegetables”).

278. IMHOFF, *supra* note 6, at 132.

279. *Id.*; U.S. EPA, Pesticide Issues in the Works: Honey Bee Colony Collapse Disorder, <http://www.epa.gov/pesticides/about/intheworks/honeybee.htm> (last visited Apr. 22, 2008); USDA, Colony Collapse Disorder, *supra* note 277 (reporting that research shows that, on average, “beekeepers lost about 35 percent of their hives [in 2007 after losing] . . . 31 percent in 2006”).

280. U.S. EPA, *supra* note 279.

281. IMHOFF, *supra* note 6, at 132.

fuels.²⁸² Although gasoline and diesel tractors pre-dated the Green Revolution, they were not common until the Green Revolution spurred large grain-based monocultures in need of efficient tractors.²⁸³ Since that time, industrial agriculture's heavy dependence on fossil fuels has reached the point where about 8% of the world's current oil output is used for agriculture.²⁸⁴ Unlike more sustainable agricultural methods, fossil fuel dependent farming produces large amounts of air pollutants. In addition to the greenhouse gas emissions discussed in conjunction with climate change below, agriculture is responsible for the majority of nitrous oxide emissions in the United States.²⁸⁵ The amount of air pollutants emitted by machine-intensive industrial commodity crop farming is compounded by the vast array of Clean Air Act exemptions for farms and CAFOs, shown above in Figure 6, that allow farms to escape any enforceable emissions limits under the Act.²⁸⁶ Poor air quality from agriculture is further exacerbated by the sheer number of miles traveled by fossil fuel powered trucks, airplanes, and boats that are used to deliver agricultural goods and food items to local supermarkets.²⁸⁷ Since the Farm Bill encourages regionalized agricultural monocultures²⁸⁸ to the exclusion of more

282. Rosset, *supra* note 187.

283. Iowa St. Univ. Ctr. for Agric. Hist. and Rural Stud., Tractors, Combines, and Science: Technological Innovation in Twentieth Century Agriculture, <http://www.history.iastate.edu/agprimer/Page27.html> (last visited June 12, 2008).

284. See, e.g., Kimball Cariou, *What Will We Eat When the Soil is Gone?*, PEOPLE'S WEEKLY WORLD NEWSPAPER, May 19, 2008, available at <http://www.pww.org/article/articleview/13074/1/266/>.

285. IMHOFF, *supra* note 6, at 103; JOHANNES KOTSCHI & KARL MÜLLER-SÄMANN, INT'L FED. OF ORGANIC AGRIC. MOVEMENTS, THE ROLE OF ORGANIC AGRICULTURE IN MITIGATING CLIMATE CHANGE: A SCOPING STUDY 17 (2004); see also U.S. EPA, Nitrous Oxide, <http://www.epa.gov/nitrousoxide/sources.html> (last visited Mar. 16, 2009) (demonstrating that approximately 70% of annual nitrous oxide emissions in the United States derive from agricultural soil management or manure management).

286. See Kurminoff, *supra* note 179, at 119 tbl.1.

287. IMHOFF, *supra* note 6, at 17.

288. For example, Farm Bill subsidies force farmers on soil that can support corn and other commodity crops to farm these crops while marginalizing fruits and vegetables to a few coastal areas. This has resulted in vast corn and wheat production in the Midwest, cotton production in the South, fruit production in Florida, and vegetable production in California. This regionalized system creates a need for massive transportation to make sure that each corner of the nation has plentiful amounts of fruits, vegetables, and other crops instead of relying on local polycultures teeming with nutrition and crop diversity.

sustainable local polycultures,²⁸⁹ the average food item now travels “approximately 1,500 miles from farm to table.”²⁹⁰ Until the public recognizes the true air quality costs of regionalized monocultures and large-scale transportation of farm goods, Congress will likely continue to write the Farm Bill to favor this unbalanced agricultural system that pollutes our air and leads to serious public health concerns that will be discussed in depth in Part V.

E. *How Climate Change Will Further Strain These Already Degraded Natural Resources*

Anthropogenic climate change is causing and will continue to cause severe climatic disturbances around the globe.²⁹¹ To date, many of the anticipated effects of climate change have occurred at alarming rates that are much more rapid than first predicted by climate scientists.²⁹² Since climate change is in large part caused by the burning of fossil fuels that emit greenhouse gases such as carbon dioxide, methane, and ozone,²⁹³ it is imperative that the United States quickly shift our nation from fossil fuels to more sustainable and renewable energy sources.²⁹⁴

Few of our federal policymakers have perceived the link between agriculture and climate change. Currently, “the Farm Bill has no Climate Change title” to address farming’s contribution to climate change or to incentivize sustainable agricultural practices that can mitigate the impacts of climate change.²⁹⁵ Further, “few, if

289. See generally, e.g., THOMAS A. LYSON, *CIVIC AGRICULTURE: RECONNECTING FARM, FOOD, AND COMMUNITY* (2004) (providing examples of farmers that have viably maintained robust polycultures by creating and utilizing local markets, which require much less transportation for distribution of goods).

290. IMHOFF, *supra* note 6, at 17.

291. See, e.g., IPCC, *supra* note 258.

292. See, e.g., *Massive Ice Shelf on Verge of Breakup*, CNN, Mar. 26, 2008, <http://www.cnn.com/2008/TECH/03/25/antarctic.ice/index.html?iref=newssearch>.

293. See, e.g., IPCC, *supra* note 258.

294. Martin LaMonica, *Bush Commits to Renewable Energy for Climate Change, Energy Security*, CNET NEWS, Mar. 5, 2008, http://www.news.com/8301-11128_3-9886334-54.html (reporting on a March 2008 speech before the Washington International Renewable Energy Conference, where former climate change opponent President George W. Bush acknowledged the genuine threat posed by climate change and the immediate need to transition the nation from fossil fuels to more renewable sources of energy to mitigate the threat posed to the United States by climate change).

295. IMHOFF, *supra* note 6, at 116.

any, [Farm Bill] programs are currently tailored to changes in rainfall cycles, sea levels, air and water temperatures, and vegetation patters, which scientific consensus insists will inevitably reshape agriculture and life as we know it.”²⁹⁶ Thus, it is time to modernize the Farm Bill to account for the inevitable impacts of climate change and to lessen those impacts before it is much too late.

To take these important steps to address climate change, our nation’s agricultural policy must withstand some restructuring. All of the environmental degradation caused by commodity crop agriculture discussed above—declining water quantity and quality, soil erosion, cultivation of marginal lands, conversion of wetlands and wildlife habitat to cropland, loss of biodiversity, and air pollution—will ultimately worsen as atmospheric carbon dioxide increases and climate change unleashes more drastic climatic extremes.

First, industrial megafarm cultivation of commodity crops is very fossil fuel dependent, which has led some observers to quip that Americans are literally “eating oil.”²⁹⁷ A snapshot view of industrial agriculture at a few critical points in the farming process easily supports that view: (1) nitrogen fertilizers, “the backbone of high-yield industrial agriculture,”²⁹⁸ are synthesized from natural gas and consume approximately 30% of the energy used in U.S. agriculture; (2) gasoline or diesel powered tractors till the land and spread seeds; (3) electricity is constantly used to power irrigation pumps and laser-guided farm equipment; (4) gasoline or diesel powered combines collect the crops during harvest; (5) the crops are driven, usually by diesel powered trucks, to a feedlot or processing plant across the country; (6) the processing plant uses large amounts of electricity to turn the crops into a television dinner or snack food; and (7) diesel powered trucks drive the food items to their final destinations.²⁹⁹ Due to this heavy dependence on fossil fuels, industrial agriculture now accounts for 20% of U.S. fossil fuel consumption to grow, process, and distribute food.³⁰⁰

296. *Id.*

297. *Id.* at 102.

298. *Id.* at 103.

299. *Id.* at 102-03.

300. *Id.* at 102.

Excluding the fossil fuels used in transportation, it takes an average of “10 calories of petroleum . . . to yield just one calorie of industrial food.”³⁰¹ A mere bushel of corn, the most prized commodity crop under the Farm Bill, requires about two-thirds of a gallon of gasoline to produce.³⁰² The true climate costs of this fossil fuel dependent agriculture system are high: agriculture now accounts for 15% of worldwide greenhouse gas emissions, while specifically accounting for almost 25% of carbon dioxide emissions and approximately two-thirds of both methane and nitrous oxide emissions in the United States.³⁰³

This fossil fuel dependence is true not only for megafarm commodity crop production, but also for CAFO livestock production that relies on commodity crops such as corn.³⁰⁴ In addition to the fossil fuels used to cultivate and transport the necessary corn feedstock, animals in CAFOs are responsible for large methane emissions because of the volume of waste produced.³⁰⁵ Although carbon dioxide is more publicized in the media, methane is at least twenty times more effective at trapping heat in the atmosphere than carbon dioxide and is thus very dangerous in the long term.³⁰⁶ Therefore, this industrial farming chain that is addicted to fossil fuels is not sustainable in light of climate change and rising oil prices. As such, Congress must act to address our oil dependency in the agricultural sector by incentivizing better farming practices such as reduced tillage, perennial pastures, and increased soil cover that will be discussed in Part VI as strategies to address environmental degradation generally and the effects of climate change specifically.³⁰⁷

301. *Id.*

302. *Id.* at 103.

303. *Id.*; KOTSCHI & MÜLLER-SÄMANN, *supra* note 285; U.S. EPA, Nitrous Oxide, *supra* note 285.

304. *E.g.*, HUMANE SOC'Y OF THE U.S., AN HSUS REPORT: THE IMPACT OF ANIMAL AGRICULTURE ON GLOBAL WARMING AND CLIMATE CHANGE (2008), available at <http://www.hsus.org/web-files/PDF/farm/animal-agriculture-and-climate.pdf>.

305. U.S. EPA, Methane: Sources and Emissions, <http://www.epa.gov/methane/sources.html> (last visited June 12, 2008).

306. U.S. EPA, Methane, <http://www.epa.gov/methane/> (last visited June 12, 2008).

307. IMHOFF, *supra* note 6, at 116 (discussing how better farming practices like small-scale organic farming, as documented in studies conducted in various nations, show that these “farming systems consume 30 to 70% less energy per unit of land than

Second, the United States must face the facts regarding ethanol production before it is too late. Although the U.S. should seek cleaner and more renewable forms of energy than fossil fuels, corn-based ethanol is a poor source on which to base our fuel supply. For example, ethanol only delivers two-thirds of the energy content of gasoline and thus only two-thirds of the traveling power.³⁰⁸ Further, ethanol production results in a 30% energy loss because of the amount of fossil fuels needed to plant, irrigate, plow, and transport the corn-based ethanol from the Midwest to its final destination.³⁰⁹ It is simply more sensible to burn the fossil fuels than to use those same fossil fuels, and more of them, to produce ethanol.³¹⁰ Thus, although ethanol sounds like a great solution for a cleaner fuel, the actual production of ethanol entirely negates any reduction in fossil fuel consumption that might have been realized by ethanol use in the United States.³¹¹ Several new studies are confirming that all forms of biofuel, not just ethanol, are having the unintended effect of “dramatically accelerating global warming, imperiling the planet in the name of saving it.”³¹²

Despite these concerns, the 2002 Farm Bill included an energy title for the first time in the bill’s history. U.S. ethanol policy currently (1) provides large subsidies for megafarm corn producers willing to cultivate the raw materials for our nation’s biofuel, (2) grants tax incentives to large corn ethanol farmers, and (3) imposes tariffs to protect American ethanol farmers from foreign competition from cheaper sugarcane biofuel producers.³¹³ In 2005, only three years after the passage of the 2002 Farm Bill, 14% of the American corn crop was already being used for ethanol

conventional farming systems”); *see generally* KOTSCHI & MÜLLER-SÄMANN, *supra* note 285.

308. IMHOFF, *supra* note 6, at 103; *id.* at 103 n.112 (the lower heating value of ethanol is 75,700 BTU per gallon while the lower heating value of gasoline is 115,500 BTU per gallon); *The Ethanol Myth: Consumer Reports’ E85 Tests Show that You’ll Get Clean Emissions but Poorer Fuel Economy . . . if You Can Find it*, CONSUMER REP., Oct. 2006, available at http://www.consumerreports.org/cro/cars/new-cars/news/2006/ethanol-1006/overview/1006_ethanol_ov1_1.htm.

309. IMHOFF, *supra* note 6, at 103.

310. *Id.*

311. *Id.*

312. Michael Grunwald, *The Clean Energy Scam*, TIME, Mar. 27, 2008, available at <http://www.time.com/time/magazine/article/0,9171,1725975,00.html>.

313. CHICAGO COUNCIL, *supra* note 87, at 66.

production; this percentage of the domestic corn crop in ethanol production is expected to nearly double by 2012.³¹⁴ As more farmers convert domestic cropland into ethanol production to maximize their Farm Bill subsidies, the environment stands to take an increasingly dramatic blow as more marginal lands are farmed with less ecologically sensitive farming practices.³¹⁵ While environmental degradation may be the most serious long-term effect of ethanol production, the most salient short-term impact of such production is that “biofuels are jacking up world food prices and endangering the hungry.”³¹⁶ This ethanol boom has created a “global emergency . . . [where] [s]oaring corn prices have sparked tortilla riots in Mexico City, and skyrocketing flour prices have destabilized Pakistan.”³¹⁷ Experts at the United Nations contend that biofuel production is a “silent tsunami” that is “threatening to plunge more than 100 million people on every continent into hunger.”³¹⁸ Therefore, it is critical that Congress immediately de-emphasize ethanol production and instead adopt new agricultural policies that promote nutritional food production and environmental protection while addressing renewable energy in more sensible sectors of society outside of agriculture. Once these types of sustainable policies are implemented, our nation’s food supply will be much more secure, our nation’s environment and natural resources will likely demonstrate very positive trends, and our domestic agriculture will no longer be one of the largest contributors to global climate change. If our nation can bring this societal transformation to fruition, agriculture will embark upon a

314. *Id.* at 66-67.

315. Grunwald, *supra* note 312 (“[U]sing land to grow fuel leads to the destruction of forests, wetlands and grasslands that store enormous amounts of carbon. . . . Deforestation accounts for 20% of all current carbon emissions. So unless the world can eliminate emissions from all other sources—cars, power plants, factories, even flatulent cows—it needs to reduce deforestation or risk an environmental catastrophe. That means limiting the expansion of agriculture, a daunting task as the world’s population keeps expanding. And saving forests is probably an impossibility so long as vast expanses of cropland are used to grow modest amounts of fuel. The biofuels boom, in short, is one that could haunt the planet for generations—and it’s only getting started.”).

316. *Id.*

317. *Id.*

318. Press Release, United Nations World Food Programme (UNWFP), World Food Programme Says High Food Prices a Silent Tsunami, Affecting Every Continent (Apr. 22, 2008), *available at* <http://www.wfp.org/english/?ModuleID=137&Key=2820>.

new era that can truly be labeled as a “green” revolution built on sustainability.

IV. THE FAILURES OF FARM BILL NUTRITION PROGRAMS

Just as Part II presented Congress’s attempts to protect the environment through the Farm Bill before exposing the weaknesses of those approaches in practice, Part IV aims to discuss the Farm Bill’s attempts on paper to ensure quality nutrition and public health before looking at the results of those attempts in practice. Part V will then discuss specific public health failures in which the Farm Bill has played a central role.

Nutrition and public health have been centerpieces of the Farm Bill since the beginning.³¹⁹ Early Farm Bills created food stamp and nutrition programs that aimed to provide “an essential social safety net for tens of millions of Americans.”³²⁰ In fact, approximately 50% of Farm Bill spending, or an average of nearly \$10 billion annually, is spent on these nutrition programs.³²¹

For Example, the USDA’s Supplemental Nutrition Assistance Program, formerly known as the Food Stamp Program, claims to “put healthy food on the table for 28 million people each month.”³²² This program gives low-income Americans coupons or electronic benefits that can be used like cash at supermarkets.³²³ The WIC (Women, Infants, and Children) Program currently provides food for more than 8 million mothers and children and saves these individuals total food bills of more than \$4 billion over the course of one year.³²⁴ This program supplements diets by allowing mothers to buy specific foods rich in iron, protein, calcium, and vitamins A and C to ensure better health both for mothers and children.³²⁵ Finally, the USDA’s National School

319. IMHOFF, *supra* note 6, at 22.

320. *Id.* at 22-23.

321. *Id.* at 22.

322. USDA, Supplemental Nutrition Assistance Program, <http://www.fns.usda.gov/fsp/> (last visited Feb. 11, 2009).

323. USDA, Supplemental Nutrition Assistance Program Fact Sheet, <http://www.fns.usda.gov/fsp/faqs.htm> (last visited Mar. 18, 2008).

324. USDA, WIC Program Monthly Data, http://www.fns.usda.gov/pd/37WIC_Monthly.htm (last visited Feb. 11, 2008).

325. USDA, Frequently Asked Questions About WIC, <http://www.fns.usda.gov/wic/FAQs/FAQ.HTM> (last visited May 1, 2008).

Lunch Program aims to provide “nutritionally balanced, low-cost or free lunches” for more than 30 million American schoolchildren each year.³²⁶ For their part in serving these so-called “nutritious” meals to schoolchildren, schools receive cash reimbursements for each reduced or free meal served and can also purchase “commodity foods” at below-market costs “as they are available from surplus agricultural stocks.”³²⁷

Despite their alleged attempts to protect our nation’s public health, these programs have fallen well short of the goal. As is evident from the USDA’s description of the National School Lunch Program quoted in the previous paragraph, the Farm Bill’s nutrition programs are based on massive agricultural surpluses of corn and soybeans that are encouraged by the Farm Bill’s inequitable commodity crop subsidies.³²⁸ As Michael Pollan notes:

The school-lunch program began at a time when the public-health problem of America’s children was undernourishment, so feeding surplus agricultural commodities to kids seemed like a win-win strategy. Today the problem is overnutrition, but a school lunch lady trying to prepare healthful fresh food is apt to get dinged by U.S.D.A. inspectors for failing to serve enough calories; if she dishes up a lunch that includes chicken nuggets and Tater Tots, however, the inspector smiles and the reimbursements flow. The farm bill essentially treats our children as a human Disposall for all the unhealthful calories that the farm bill has encouraged American farmers to overproduce.³²⁹

The image of our nation’s children as human calorie disposals is quite disturbing, but it is even more troubling that the USDA oversees these failing Farm Bill nutrition programs while also controlling national standards for nutrition. Despite the USDA’s calls for balanced diets packed with nutrients through gimmicks such as the USDA Food Pyramid,³³⁰ the actual practices of Farm

326. USDA, National School Lunch Program Fact Sheet, <http://www.fns.usda.gov/cnd/Lunch/AboutLunch/NSLPFactSheet.pdf> (last visited Feb. 18, 2009).

327. *Id.*

328. Pollan, *You Are What You Grow*, *supra* note 1.

329. *Id.*

330. USDA, Food Pyramid, <http://www.mypyramid.gov/> (last visited Aug. 24, 2008). The USDA, the same agency charged with implementing the Farm Bill’s nutrition programs, has long relied on the Food Pyramid to educate Americans about proper nutrition. On its Food Pyramid website, the USDA correctly acknowledges that

Bill “nutrition” programs illustrate that these programs have become nothing more than a way to dump cheap calories from corn and other commodity crops that have no other useful purpose.³³¹ As Part V highlights, the dumping of these commodity crop calories both in Farm Bill nutrition programs to children and families and onto our supermarket shelves is a massive governmental failure that is taking an enormous toll on public health in the United States and is placing strain on the health care system that must support an impending health crisis.

V. THE PUBLIC HEALTH IMPACTS OF SUBSIDIZED COMMERCIAL AGRICULTURE

This Part chronicles the public health failures of the Farm Bill’s subsidized commodity crop system. Michael Pollan’s words referenced just above illustrate a fundamental realization that the American public must come to grasp before change can ensue: by all accounts, studies, and statistics, our nation is sick and is getting sicker by the day.³³² Although farm policy is not the sole cause of this national health emergency, it is a substantial contributor because of the Farm Bill’s far-reaching implications for food availability and consumption. It is time to treat this national illness before our health problems reach such grave levels that the American medical system will no longer be sufficient to meet our growing health needs.

individuals need to “make smart choices from every food group,” “get the most nutrition out of [their] calories,” and “stay within [their] daily calorie needs.” The Food Pyramid goes even further by providing Americans with personalized and detailed explanations of their caloric and nutritional daily needs based on gender, age, height, and weight and by suggesting healthful foods that could satisfy one’s needs. The problem, however, is that the food that overwhelmingly dominates supermarket shelves does not reflect the food that the USDA considers to be the best sources of nutrition for the American public. This is because the Farm Bill, under the direction of the same USDA that administers the Food Pyramid, encourages cheap, low-nutrient food production that lines our shelves with unhealthy products and completely undermines the effectiveness of both the Food Pyramid and the USDA in providing nutritional guidance to the American public.

331. Pollan, *You Are What You Grow*, *supra* note 1; Burkhard Bilger, *The Lunchroom Rebellion*, *NEW YORKER*, Sept. 2006, available at <http://www.chefann.com/blog/?p=397>.

332. Pollan, *You Are What You Grow*, *supra* note 1.

A. The Effects of Commodity Agriculture on Exposure to Toxins

The most direct public health effects from industrial commodity crop agriculture are related to occupational exposure to pesticides and other chemicals. As part of industrial farming's commodity crop machine, many low-income laborers are required to constantly prepare the corn or other commodity crops for harvest. With industrialized farming—as opposed to small-scale sustainable farming—cheap labor on a large scale is necessary for tasks such as spraying toxic pesticides. The need for labor is reduced in a sustainable farming context, and, moreover, the lack of or minimization of harmful chemicals prevents damage to such laborers. In contrast, farmworkers in an industrialized setting are in such close contact with the heavily sprayed crops that their health suffers greatly as a result. Statistics gathered by the Environmental Protection Agency (EPA) show that the more than 16,000 pesticide products marketed in the United States today result in 10,000-20,000 poisonings each year for farmworkers.³³³

Although the effects may not be as rapid as they are for farmworkers in constant proximity to the pesticides, consumer exposure to pesticides is also an issue of importance because agricultural pesticides in drinking water often go undetected even while affecting large communities. The EPA acknowledges the need for consumers to limit exposure to pesticides “through inhalation, ingestion, or bodily contact since “pesticides may pose some risk to humans,”³³⁴ which is quite deceptive considering that the same EPA refuses to exercise its discretion to take these dangerous chemicals off of the market. The EPA has clearly outlined for the public the danger that pesticides pose when they leach into public water supplies and drinking wells.³³⁵ However, rather than fulfilling its legal obligation to ban chemicals that pose the greatest health threats to consumers, the EPA instead places the burden on the consumer to pay to test his or her drinking

333. Nat'l Inst. for Occ. Safety & Health (NIOSH), Pesticide Illness & Injury Surveillance, <http://www.cdc.gov/niosh/topics/pesticides/> (last visited May 3, 2008).

334. U.S. EPA, Frequently Asked Questions: Are Pesticides Safe?, http://pesticides.custhelp.com/cgi-bin/pesticides.cfg/php/enduser/std_alp.php?p_sid=5B58-3wj (follow “Are pesticides safe?” hyperlink) (last visited Feb. 18, 2009).

335. U.S. EPA, PESTICIDES IN DRINKING-WATER WELLS (1990), available at <http://www.epa.gov/region02/pesticides/drink1.pdf>.

water for potentially leached pesticides.³³⁶ These conflicting signals from our own government cause confusion about the real threat of pesticides, which has left consumers “suffering from information overload and . . . unable to distinguish significant health risks from insignificant risks.”³³⁷

With the EPA reluctant to take these dangerous chemical pesticides off of the market, likely due in part to pressure from agribusiness, it is important for the public to understand the potentially serious health risks posed by these chemicals. The EPA has determined that many of the pesticides used in food production are carcinogenic according to the agency’s own standards, but the foods are allowed on our supermarket shelves so long as the amount of pesticide residue found in the food is of “negligible risk” or below tolerable levels.³³⁸ The cancer-causing effects of these carcinogens are compounded by the added risk imposed by many pesticides that also act as endocrine disrupting chemicals (EDCs).³³⁹ These chemicals “are synthetic compounds that affect the functioning of the endocrine system by either blocking the effect of naturally produced hormones in the endocrine system or by altering the effect of naturally occurring hormones.”³⁴⁰ These chemicals “trick the organism’s body into believing that they are supposed to play a role in the body’s functions,” but they instead sabotage the body’s normal functions after gaining access.³⁴¹ “[T]he potential harm from EDCs is

336. *Id.*

337. Phipps, *supra* note 266, at 146.

338. Valerie J. Watnick, *Our Toxics Regulatory System and Why Risk Assessment Does Not Work: Endocrine Disrupting Chemicals as a Case in Point*, 2004 UTAH L. REV. 1305, 1311 (2004); POLLAN, THE OMNIVORE’S DILEMMA, *supra* note 57, at 177 (“[C]arcinogens, neurotoxins, and endocrine disruptors [are] now routinely found in conventional produce and meat . . . and [r]emarkably little research has been done to assess the effects of regular exposure to the levels of organophosphate pesticide or growth hormone that the government deems ‘tolerable’ in our foods. . . . [T]hese official tolerances [fail to] adequately account for children’s exposure to pesticides, which, because of children’s size and eating habits, is much greater than adults’.”).

339. Watnick, *supra* note 338, at 1307-08.

340. *Id.* at 1308; POLLAN, THE OMNIVORE’S DILEMMA, *supra* note 57, at 178 (noting that Atrazine, for example, which is commonly sprayed on cornfields as an herbicide, “has been shown to turn normal male frogs into hermaphrodites” and could have similar effects on the human reproductive system).

341. Sheldon Krimsky, *Hormone Disruptors: A Clue to Understanding the Environmental Causes of Disease*, 43 ENVIRONMENT 22, 25-26 (2001).

insidious and well documented.”³⁴² In particular, scientific evidence shows “that a link exists between EDCs and decreased sperm counts; breast, testicular, and prostate cancer; and neurological disorders.”³⁴³ Many of these dangerous chemicals have been banned in the European Union, but the EPA has failed to follow suit with regard to these products in the United States.³⁴⁴ Thus, it is important for consumers to remain vigilant in understanding these risks and to take appropriate measures to mitigate these health risks until broader agricultural policy changes can better protect our public.

On a related topic, there have been noted increases in food poisoning cases and outbreaks of viral and bacterial disease related to the Farm Bill’s agricultural policies.³⁴⁵ To understand how humans become ill from industrialized agriculture, we must first look at the vast system of CAFOs—dependent on subsidized corn and other grains—that makes our livestock sick.³⁴⁶ As Michael Pollan notes, “the health of these animals is inextricably linked to our own by [a] web of relationships.”³⁴⁷ By altering evolutionary history and shifting grass-fed cows, hogs, and chickens into corn-fed livestock, our nation’s animals have become quite ill.³⁴⁸ To cope with this change that defies evolution, animals at CAFOs are injected with large amounts of antibiotics and hormones to keep them alive throughout the corn-feeding process until slaughter.³⁴⁹ These antibiotics and hormones make their way into our nation’s

342. Watnick, *supra* note 338, at 1308-09.

343. *Id.*; Krinsky, *supra* note 341.

344. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 178 (describing how Atrazine, among other pesticides, was banned in the European Union because of the threat it poses to public health).

345. *See, e.g., id.* at 81-83.

346. *See id.*

347. *Id.* at 81.

348. *Id.*; E.N. Ponnampalam et al., *Effect of Feeding Systems on Omega-3 Fatty Acids, Conjugated Linoleic Acid and Trans Fatty Acids in Australian Beef Cuts: Potential Impact on Human Health*, 15 *ASIA PAC. J. CLIN. NUTR.* 21, 21 (2006) (concluding that grass-fed cattle have much higher levels of healthy fats and other compounds while grain-fed cattle have much higher levels of unhealthy fats and compounds—a clear indication that cows, and their meat, are much healthier when cattle are fed grass as opposed to corn).

349. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 78-79.

supply of meat and related products such as eggs, milk, cheese, and other dairy products.³⁵⁰

Further, corn-fed livestock in CAFOs produce tons of manure in a small space, creating a breeding ground for some of the deadliest bacteria known to man.³⁵¹ *E. coli*, for example, derives from animal manure and has mutated into numerous drug-resistant strains such as 0157:H7.³⁵² This lethal strain of *E. coli*, never seen before 1980, gained notoriety in 2006 when an outbreak traced to Californian spinach farms resulted in many illnesses and a public health scare.³⁵³ The likely cause? Water contaminated by livestock manure from upstream CAFOs.³⁵⁴ Therefore, rather than creating breeding pools for bacterial disease in the form of corn-dependent CAFOs, our agricultural policies must become more forward-thinking to avoid preventable public health disasters of this kind. One such method is localizing the U.S. food system, which would make it much simpler to contain outbreaks of bacterial and viral diseases, thus making the whole food supply noticeably safer. This concept will be explored more fully as part of a larger policy solution in Part VI.

B. *The Effects of Commodity Agriculture on American Food Choice and Availability*

There is a very common but dangerous misconception among much of the American public that healthy food is readily available in communities across the United States. This is especially true of individuals of higher socioeconomic status that have access to plentiful amounts of locally-grown produce and organic food items that are marketed to such people because of their financial resources. Thus, the public often wrongly assumes that healthy foods are in abundance for all Americans and that poor diet just results from individuals' poor judgment in failing to take personal responsibility for their own health.³⁵⁵ This "personal responsibility"

350. *Id.*

351. *Id.* at 82.

352. *Id.*

353. *Id.*; IMHOFF, *supra* note 6, at 52.

354. IMHOFF, *supra* note 6, at 52.

355. *See, e.g.*, Center For Consumer Freedom, Report Rejects Personal Responsibility, Apr. 29, 2008, http://www.consumerfreedom.com/news_detail.cfm/

argument is quite tenuous, however, when one actually looks at the food availability and food choice implications of the Farm Bill.

The Farm Bill has produced a very distorted food system by sending signals to farmers in the form of commodity crop subsidies that tell farmers what they must grow in order to survive. First, the Farm Bill has prioritized corn, wheat, rice, cotton, and soybeans as subsidized commodity crops,³⁵⁶ which has forced farmers to grow these commodity crops as a means of survival rather than growing more nutritious food items such as fruits and vegetables that would be more in line with farmer preferences.³⁵⁷ Since corn production alone accounts for 25% of U.S. cropland and much more is committed to growing wheat, rice, soybeans, and cotton because of their subsidy value,³⁵⁸ farmers are using the majority of American cropland for a few low-nutrient crops solely because these crops are favored by federal agricultural policy. Second, Farm Bill subsidies have created a massive food industry built on commodity crops, namely corn and soybeans, that present the American

headline/3622 (arguing that personal responsibility and exercise are the answers to our nation's health problems caused by food, the author criticizes a scientific study released by the California Center for Public Health Advocacy (CCPHA) that advocates for stricter governmental control of the fast food market to curb obesity). Specifically, the study suggested that "it's time to consider adding the fast-food joints and convenience stores around every corner to the Environmental Protection Agency's list of known environmental toxins." Instead of addressing the scientific merits of this suggestion, the Center for Consumer Freedom, like most other so-called personal responsibility groups, dismissed the public health epidemic caused by low-nutrient processed food as "junk science" and resorted to calling the reputable CCPHA "radical obesity crusader[s]" and "the Gastronomical Gestapo." *Id.*

356. IMHOFF, *supra* note 6, at 59.

357. See NAT'L PUB. POL'Y EDUC. COMMITTEE, *supra* note 175, at v, 8 (A comprehensive survey of small, medium, and large farms asked more than 63,000 farmers in 27 participating states a list of questions related to the Farm Bill. Although some large farmers were concerned that potential subsidies for fruits and vegetables may diminish their own commodity subsidies from corn or soybeans, more than 38% of all farmers ranked the subsidizing of fruits and vegetables as either important or as the most important issue for them under the Farm Bill. This indicates that many farmers recognize the importance of fruit and vegetable production and support subsidies for farmers of these goods. Since many of those surveyed also voiced their support for protection of local ecosystems, it is likely that many of the dissenters with regard to fruit and vegetable subsidies would be willing to join such a program if it could benefit them financially while protecting their long-term farming interests through preservation of local ecosystems.).

358. RUNGE, *supra* note 114, at 6 (noting that corn production accounted for approximately 25% of U.S. cropland in 2001). That number is increasing with larger subsidies for ethanol production. *Id.*

public with fewer healthy options than might otherwise exist.³⁵⁹ By subsidizing only these few crops, the Farm Bill further causes food choice confusion because it distorts the market—including the price that consumers see at the supermarket—by making corn-based and soy-based food items appear cheaper than their more nutritious competitors in the supermarket aisles.³⁶⁰ Commenting on this phenomenon, Michael Pollan notes:

[T]he current farm bill helps commodity farmers by cutting them a check based on how many bushels they can grow, rather than, say, by supporting prices and limiting production, as farm bills once did. The result? A food system awash in added sugars (*derived from corn*) and added fats (*derived mainly from soy*), as well as dirt-cheap meat and milk (*derived from both*).³⁶¹

Third, Farm Bill subsidies have regionalized agriculture in the United States by pressuring farmers to produce corn and other commodity crops on cropland where such production is possible. This has resulted in a rigid system of regionalized crops whereby corn and wheat are plentiful in the Midwest, fruits and vegetables are plentiful in Florida and California, and little is plentiful in urban centers far from agricultural areas. This has made it extremely difficult for low-income urban populations, who disproportionately suffer the greatest health consequences from the Farm Bill's food policies, to find food grown close to where they live.³⁶² Therefore, this system has relegated large percentages

359. See generally POLLAN, *THE OMNIVORE'S DILEMMA*, *supra* note 57.

360. *Id.*

361. Pollan, *You Are What You Grow*, *supra* note 1 (emphasis added).

362. See, e.g., Robert Rogers, *San Bernardino County's Health Risk: Food Choice Limited*, SAN BERNARDINO CTY. SUN, Apr. 29, 2008 (reporting that low-income customers at Westside Food and Liquor in San Bernardino frequently purchase the "grocery special" of "two gallons of milk, two gallons of flavored punch, two loaves of white bread, and two cartons of eggs for \$11.99"). The reason for these frequent "grocery special" purchases from a liquor store is that "[t]here are no organic food markets or even chain grocers within two miles of this neighborhood . . . [and] [f]ast-food outlets and convenience stores dominate here." *Id.* A recent study cited by the newspaper article "found that San Bernardino County has California's highest ratio of fast-food and convenience stores compared to grocery stores and produce vendors, contributing to higher incidences of health afflictions stemming from poor nutrition." *Id.* Although the highest ratio was found in San Bernardino County, "the statewide numbers were [similarly] disturbing . . . with the average Californian confronted with four times as many fast-food outlets and convenience stores as grocers." *Id.* It is important to note that while Iowa and other Corn

of our urban population to purchasing the family dinner at the nearest convenience store, liquor mart, or fast food restaurant where corn-based, high-fat, processed food items are in abundance and often the only choice.³⁶³

Despite limited choice in healthy non-corn and non-soy food choices in the supermarket, assuming a local supermarket even exists, critics still contend that the Farm Bill is not at fault because food choices depend on personal responsibility.³⁶⁴ These critics make a glaring oversight by failing to account for the Farm Bill's omnipotence in determining what crops our nation grows, the foods that are processed with those crops, and the prices at which those crops and processed foods will be sold at the market as compared to their unsubsidized but more nutritious competitors.³⁶⁵ With such mounting evidence of the Farm Bill's role in the rapid increase of obesity and related illnesses, how could critics fail to consider the importance of the Farm Bill in determining the food on our supermarket shelves and the prices of those food items? The answer is simple: the critics of any potential overhaul are many of the same corporations that reap the benefits of Farm Bill subsidies and would stand to lose hundreds of millions of dollars each year if the Farm Bill is changed to reflect more positive health impacts.³⁶⁶

Belt states import more than 80% of their food for consumption purposes because their own croplands are tied up in corn production and other commodity crop production, the residents of these states are in a better position than their urban counterparts because they have tradable commodities in the form of corn and other crops. For example, these states are expected to ship out corn, wheat, and soybeans to Florida and California because of our regionalized system and in return these states receive shipments of fruits and vegetables, making food more available than it likely is in an urban center where no valuable commodity exists to trade.

363. *Id.*

364. *See, e.g.*, Center For Consumer Freedom, *supra* note 355.

365. *See generally* POLLAN, THE OMNIVORE'S DILEMMA, *supra* note 57 (pointing out that the food availability and food choice problems created by the Farm Bill are compounded by the reduced financial resources and lack of transportation in low-income communities that suffer disproportionately high rates of health conditions because even if these individuals want to practice personal responsibility, the odds are stacked against them because of the numerous obstacles they face due to our farm and food policies).

366. *See* Nat'l Uniformity for Food Coalition, About the Coalition, <http://www.uniformityforfood.org/aboutthecoalition.htm> (last visited Feb. 19, 2009) (illustrating that the Coalition is comprised of commodity subsidy beneficiaries such as Cargill, Coca-Cola, General Mills, Kraft, and others).

In 2005, these critics pressured Congress to enact two new pieces of legislation to further tighten their stranglehold on American food choice: (1) the National Uniformity for Food Act and (2) the Personal Responsibility in Food Consumption Act, also known as the “Cheeseburger Bill.”³⁶⁷ The National Uniformity for Food Act sought to “prevent states from having food safety or labeling requirements stricter than those of the federal government,” which would eliminate state laws such as those that “keep lead out of children’s candy and warn pregnant women about dangerous ingredients.”³⁶⁸ The Personal Responsibility in Food Consumption Act sought to protect fast food restaurants and food retailers from lawsuits by customers suffering from obesity and other severe health conditions because of the unhealthy food served at such establishments.³⁶⁹ These bills were both pushed by none other than the National Uniformity for Food Coalition, which consists of the largest players in the agribusiness and food processing industries such as Cargill, Coca-Cola, ConAgra Foods, PepsiCo, H.J. Heinz, Hershey, Kellogg, and many others.³⁷⁰ Fortunately, each of these bills died before ever reaching a Senate vote.³⁷¹ Unfortunately, the Farm Bill’s commodity subsidies are still in effect with nearly insurmountable support from the agribusiness industry while our nation’s public health continues to decline at an alarming rate.

C. *The Effects of Commodity Agriculture on Obesity*

The previous subpart illustrated the power of the Farm Bill to determine food availability and food choice in the United States. To put the immensity of that power into context, the remainder of

367. Nat’l Uniformity for Food Coalition, About the Legislation, <http://www.uniformityforfood.org/legislation.htm> (last visited May 4, 2008).

368. Eric Schlosser, *One Thing to Do About Food: A Forum*, THE NATION, Aug. 24, 2006, <http://www.thenation.com/doc/20060911/forum>.

369. *US Approves ‘Cheeseburger Bill,’* BBC, Mar. 12, 2004, <http://news.bbc.co.uk/2/hi/americas/3500388.stm>.

370. Nat’l Uniformity for Food Coalition, <http://www.uniformityforfood.org/aboutthecoalition.htm> (last visited May 4, 2008).

371. Nat’l Uniformity for Food Act, H.R. 4167, 109th Cong. (2005), available at <http://www.govtrack.us/congress/bill.xpd?bill=h109-4167> (explaining that this bill never became law); Personal Responsibility in Food Consumption Act, H.R. 554, 109th Cong. (2005), available at <http://www.govtrack.us/congress/bill.xpd?bill=h109-554> (explaining that this bill never became law).

this Part will investigate specific health conditions that are due in part to subsidized commodity crop production under the Farm Bill.

In 2002, United States Surgeon General David Satcher opined that American obesity was reaching “epidemic proportions” because of the rapid doubling of obesity rates over a twenty year period between 1980 and 2000.³⁷² In the seven years that have passed since Satcher’s call for reform, nothing has changed to stop or slow this epidemic from spiraling out of control.³⁷³ At present, approximately 66% of American adults are clinically overweight and many of those, or 31% of American adults, are medically obese, which occurs when a person weighs more than 100 pounds over his or her recommended bodyweight.³⁷⁴ Even more troubling, childhood obesity rates tripled during the same period.³⁷⁵ Children and adults alike are consuming an average of 700 more calories per day than did their counterparts in 1980 due in part to the abundance of high-calorie, high-fat processed foods on supermarket shelves that are supported by Farm Bill subsidies.³⁷⁶

The lack of change since David Satcher issued his initial warning of the obesity epidemic confirms the same point made above: the Farm Bill, not personal responsibility, primarily determines what food consumers purchase by manipulating what food, and what food prices, ultimately make it onto supermarket shelves—at present, the majority of that food is artificially cheap and far from nutritious. By focusing on only a few commodity crops, “U.S. public policy encourages obesity at the expense of sound nutritional practices [by] compel[ling] farmers to ignore

372. *Satcher: Obesity Almost as Bad as Smoking*, CNN, Jul. 16, 2002, <http://archives.cnn.com/2001/HEALTH/conditions/12/13/satcher.obesity/>; Kevin Foley, *Health Report: Obesity Becomes A Problem*, RADIO FREE EUROPE RADIO LIBERTY, Jan. 11, 2001, <http://www.rferl.org/content/Article/1095503.html>.

373. IMHOFF, *supra* note 6, at 90.

374. *Id.*

375. *Id.*

376. Marion Nestle, *One Thing to Do About Food: A Forum*, THE NATION, Aug. 24, 2006, <http://www.thenation.com/doc/20060911/forum>; IMHOFF, *supra* note 6, at 91 (“[T]he average U.S. citizen’s daily food intake has ballooned to nearly 3,900 calories—almost twice the maximum recommended by U.S. health officials. This includes, on average, 32 teaspoons of added caloric sweeteners per day and as high as 1,800 calories in fats.”).

other crops such as fruits, vegetables, and other grains.”³⁷⁷ This can be seen by looking at the products in any grocery store, where the shelves are

flooded with products made from the highly subsidized crops, including sweeteners in the form of high-fructose corn syrup, fats in the form of hydrogenated fats made from soybeans, and feed for cattle and pigs. This flood, in turn, drives down the prices of fattening fare such as prepackaged snacks, ready-to-eat meals, fast food, corn-fed beef and pork, and soft drinks. Worse yet, paltry support for foods other than these staples increases the contrast between prices of fat-laden, oversweetened foods and those of healthier alternatives, offering poor folks little choice but to stock their pantries with less nutritious foods.³⁷⁸

The most poignant example of a Farm Bill-supported obesity trap is the high-fructose corn syrup (HFCS) referenced above, which provides consumers with many calories but no nutrition. HFCS is a processed creation of the Farm Bill’s most prized commodity crop, corn, which has become ubiquitous in American society in its short thirty-year history.³⁷⁹ Each year, 530 million bushels of corn are turned into 17.5 billion pounds of HFCS that is then used by companies like Coca-Cola, PepsiCo, Hershey, and others to pollute our bodies with an unhealthy alternative to cane sugar.³⁸⁰ Unlike in the European Union, where HFCS has been banned in favor of more nutritional beet sugar, HFCS consumption in the United States is robust and HFCS is the main ingredient in many daily food products such as “soft drinks, baby food, fruit drinks, ketchup, yogurt, candies, cakes, muffins, and too

377. Scott Fields, *The Fat of the Land: Do Agricultural Subsidies Foster Poor Health?*, ENVTL. HEALTH PERSPECTIVES, Oct. 2004, available at <http://www.medscape.com/viewarticle/491630>.

378. *Id.*

379. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 103.

380. *Id.*; Fields, *supra* note 377 (noting that the Corn Refiners Association, which represents the largest producers of HFCS, has consistently maintained that “HFCS and table sugar are indistinguishable to the human body . . . [and HFCS] is safe to consume and can be a part of healthy, balanced diet”). However, the correlation between the obesity increase and the ever-growing use of HFCS is very strong and the consensus of scientific evidence has shown that HFCS causes metabolic changes to the human body that are not seen from other forms of sugars and sweeteners. *Id.*

many other products to count.”³⁸¹ A conservative estimate guesses that Americans average no less than 132 calories a day from HFCS, many calories of which are disguised in seemingly-benign foods like bread, crackers, ketchup, baby food, and yogurt that are rarely apprehended as obesity traps.³⁸² Even worse, recent studies have found high levels of mercury—a severely debilitating neurotoxin—in products containing HFCS.³⁸³

Unable to traverse the toxic HFCS land mines laid throughout the supermarket by clever food processors and Farm Bill legislators as cheap corn-based and soy-based junk food, children have suffered disproportionately from the obesity epidemic.³⁸⁴ Statistics show that “[b]etween 1965 and 1996, adolescents’ milk consumption decreased by 36% as soft drink consumption increased by 287% in boys and 224% in girls.”³⁸⁵ During the same period, the reduction in milk consumption led to higher rates of childhood calcium deficiencies.³⁸⁶ Further, it is well established that “[p]eople who consume more than 18% of their calories in added sugars (and U.S. consumption of added sugars increased 28% between 1982 and 1997) have lower-than-normal levels of essential micronutrients, especially vitamin A, vitamin B₁₂, folate, magnesium, and iron.”³⁸⁷ In fact, a dismal 2% of children ages two to nineteen meet all five federal requirements for a healthy diet.³⁸⁸ Based on these grim statistics, this generation may “be the first in American history to die at a younger age than their parents.”³⁸⁹

381. Fields, *supra* note 377.

382. *Id.*

383. Renee Dufault et al., *Mercury from Chlor-alkali Plants: Measured Concentrations in Food Product Sugar*, ENVTL. HEALTH, Jan. 2009, available at <http://www.ehjournal.net/content/8/1/2> (concluding that mercury—“an extremely potent neurological toxin”—was found in 45% of tested samples of commercial HFCS); DAVID WALLINGA ET AL., INST. FOR AGRIC. & TRADE POL’Y, NOT SO SWEET: MISSING MERCURY AND HIGH FRUCTOSE CORN SYRUP 4 (2009), available at <http://www.healthobservatory.org/library.cfm?refid=105026> (finding high levels of mercury in HFCS-laden foods such as oatmeals, barbecue sauces, ketchups, yogurts, milks, and punches made by companies such as Heinz, Hershey’s, Kraft, Smucker’s, Coca-Cola, Minute Maid, Nesquik, and Pop-Tarts).

384. Fields, *supra* note 377.

385. *Id.*

386. *Id.*

387. *Id.*

388. IMHOFF, *supra* note 6, at 89.

389. *Id.*

The statistics recited above indicate that American adults have not fared much better than children in wading through the sea of unhealthy food products in search of truly nutritious options. In addition to individual health concerns, obesity has real costs that affect our nation's economy and health care system. In 2006 alone, "obesity-related illnesses were responsible for 40 million lost work days, 63 million doctor visits, 239 million restricted activity days, and 90 million bed-bound days."³⁹⁰ The United States Surgeon General estimates that Americans now spend well over \$100 billion annually on illnesses caused by obesity, which is, shockingly, more than the Farm Bill's annual budget.³⁹¹ As these medical costs rise, "[a]n increasing percentage of these costs are footed by taxpayers."³⁹² Thus, as taxpayers, we are paying agribusiness and food processors through Farm Bill subsidies and then turning around and spending more tax dollars on the rising health care costs driven by the same agribusiness and food processing giants that stock our shelves with unhealthy food.

An important question must therefore be answered: Is the Farm Bill genuinely responsible for lowering the prices of these high-sugar, fat-laden, HFCS-packed products thereby making them more attractive to customers and altering consumers' food decisionmaking processes? Very simply, the answer is yes. The best example that can be used to illustrate the Farm Bill's direct responsibility for distorting domestic prices and contributing to the obesity epidemic is HFCS as compared to fruits and vegetables. Between 1985 and 2000, "the cost of [unsubsidized] fresh fruits and vegetables *increased* nearly 40% while the price of soft drinks [of which the main ingredient is subsidized corn-based HFCS] *decreased* by almost 25%, adjusted for inflation."³⁹³ Thus, food products highly subsidized under the Farm Bill such as HFCS-laden sodas, candy, and other unhealthy processed foods actually saw their supermarket prices decrease as a result of subsidy-

390. *Id.* at 96-97.

391. *Id.* at 96.

392. *Id.*

393. EWG, The Debate Over Subsidizing Snacks, <http://www.ewg.org/node/21997> (last visited May 8, 2008) (emphasis added); HEATHER SCHOONOVER & MARK MULLER, INST. FOR AGRIC. & TRADE POL'Y, FOOD WITHOUT THOUGHT: HOW U.S. FARM POLICY CONTRIBUTES TO OBESITY 6 (2006), available at <http://www.healthobservatory.org/library.cfm?RefID=80627>.

propelled market distortion, while unsubsidized fruits and vegetables saw a spike in price.³⁹⁴ It is quite clear where consumer choice went as a result of the inequitable system that makes unhealthy sodas cheap and nutritious food expensive: “[t]he average American [now] consumes over 50 gallons of carbonated soft drinks a year”³⁹⁵ and that same American eats a significant portion of his or her “vegetables” in a given year in the form of cheap, low-nutrient frozen potatoes, fresh potatoes, and potato chips.³⁹⁶ As a number of scientists and health researchers have recently found across the board in supermarket nutrition studies, one dollar buys “1,200 calories of potato chips and cookies . . . [while] the same dollar buys only 250 calories . . . [of] a whole food like carrots.”³⁹⁷ Many consumers choose the most cost-effective means of obtaining necessary calories, which unfortunately is found in unhealthy foods because of price distortion under the Farm Bill. Studies have shown, however, that a “50% reduction in the cafeteria price of fruit and salad led to a *four-fold increase in sales*.”³⁹⁸ Thus, if the Farm Bill either subsidized healthy fruits and vegetables at the same rate as unhealthy commodity crops or if the Farm Bill allowed the free market to work properly so that healthy and unhealthy foods are on equal footing, the evidence shows that consumers would make better health decisions for themselves and their families.

Since price will always factor considerably into Americans’ everyday decisions, subsidy-driven market distortion of supermarket food prices must be addressed urgently to alleviate the severe public health ills discussed herein. Instead of making unhealthy foods appear cheaper and more attractive to consumers through deceptive subsidies, our government should reform the Farm Bill to return to one of its original key goals of providing a healthy food supply for the American public. Until the federal government allows the market, and the supermarket for that matter, to function free of deceptive commodity crop subsidies for select crops such as corn, our population will continue to blaze

394. SCHOONOVER & MULLER, *supra* note 393.

395. *Id.* at 5.

396. IMHOFF, *supra* note 6, at 89.

397. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 107-08.

398. SCHOONOVER & MULLER, *supra* note 393, at 8 (emphasis added).

into uncharted territory where general health conditions worsen, younger generations die at earlier ages than their parents, and medical costs balloon to unthinkable heights. Although this alone cannot solve the obesity epidemic because of other contributing factors, allowing the market to operate properly with respect to agricultural prices will result in healthier foods on supermarket shelves and in better food decisions as prices of nutritious foods normalize against their less nutritious counterparts.

D. *The Effects of Commodity Agriculture on Obesity-Related Illnesses*

Obesity itself is a dangerous condition that severely diminishes one's quality of life and is known to cut many years off of one's life expectancy. To fully understand the impact of the obesity epidemic, however, it is important to look at obesity-related illnesses that are caused by the cheap, unhealthy foods subsidized by the Farm Bill. Diabetes, which occurs when the body does not produce insulin (Type 1 diabetes) or does not properly use insulin (Type 2 diabetes), has become a much more common health condition in recent years.³⁹⁹ There are currently 24 million children and adults in the United States, or 8% of the population, with diabetes.⁴⁰⁰ Most Americans that are diagnosed with diabetes suffer from Type 2 diabetes,⁴⁰¹ which tends to be caused by "being obese or overweight."⁴⁰² The U.S. diabetes trends are shocking: there was a 40% increase in the number of American diabetes cases during the nine-year period from 1990 to 1999⁴⁰³ and a 41%

399. Am. Diabetes Ass'n, All About Diabetes, <http://www.diabetes.org/about-diabetes.jsp> (last visited May 5, 2008).

400. *Id.*; *Diabetes Rates Skyrocket Among Americans, CDC Says*, CNN, June 25, 2008, <http://diabeticnetwork.com/community/DCForumID39/11.html> (noting that in addition to the 24 million Americans diagnosed with diabetes, another 57 million people, or nearly 20% of the American population, "have blood sugar abnormalities called pre-diabetes, which puts people at increased risk for the disease").

401. American Diabetes Ass'n, *supra* note 399.

402. C.M. Steppan et al., *The Hormone Resistin Links Obesity to Diabetes*, 409 NATURE 292, 307 (2001); Daniel J. DeNoon, *Diabetes Up, Obesity to Blame: Oversized Bodies Feeding Flames of Diabetes Epidemic*, WEBMD MEDICAL NEWS, Apr. 20, 2006, <http://diabetes.webmd.com/news/20060420/diabetes-up-obesity-to-blame>.

403. George Johnson, *We May Be Closing in on the Long-Sought Link Between Diabetes and Obesity*, <http://txtwriter.com/Onscience/Articles/diabetesobesity.html> (last visited May 5, 2008).

increase during the six-year period between 1997 and 2003.⁴⁰⁴ The total economic cost of diabetes in 2007 was approximately \$174 billion, with medical expenditures estimated at \$116 billion, or 67% of the total cost.⁴⁰⁵ One out of five health care dollars spent in the United States is spent caring for someone with diabetes.⁴⁰⁶ The human costs are even more tragic: 233,619 deaths were attributed to diabetes in 2005 alone,⁴⁰⁷ and the “value of lost productivity due to [these] premature death[s] is \$26.9 billion.”⁴⁰⁸

In addition to Type 2 diabetes, obesity due to a poor diet of processed commodity crops has caused an increase in the number of Americans suffering from coronary heart disease.⁴⁰⁹ Heart disease, which is caused by the accumulation of plaques on artery walls when foods containing saturated fats and trans fats are consumed, is a serious concern that leaves more than 652,000 Americans dead each year, usually after a heart attack.⁴¹⁰ Additionally, tens of millions of Americans are diagnosed with heart disease and will likely suffer complications from this disease in the near future.⁴¹¹ Knowledgeable groups such as the American Heart Association consider obesity a “major risk factor” for heart disease because obesity raises cholesterol, lowers HDL “good” cholesterol, and raises blood pressure among other heart disease

404. DeNoon, *Diabetes Up, Obesity to Blame*, *supra* note 402.

405. Am. Diabetes Ass’n, Direct and Indirect Costs of Diabetes in the United States, <http://www.diabetes.org/diabetes-statistics/cost-of-diabetes-in-us.jsp> (last visited May 5, 2008).

406. *Id.*

407. Nat’l Diabetes Info. Clearinghouse, National Diabetes Statistics, 2007, <http://diabetes.niddk.nih.gov/DM/PUBS/statistics/#deaths> (last visited Apr. 12, 2009).

408. *Id.*

409. Jennifer L. Baker et al., *Childhood Body Mass Index and the Risk of Coronary Heart Disease in Adulthood*, 357 NEW ENG. J. MED. 2329, 2329 (2007); Daniel J. DeNoon, *Forecast: Tsunami of Heart Disease: Overweight Kids Become Adults with Sick Hearts; Huge Problem Seen by 2035*, WEBMD MEDICAL NEWS, Dec. 5, 2007, <http://www.medicinenet.com/script/main/art.asp?articlekey=85672>.

410. AM. HEART ASS’N, HEART DISEASE STATISTICS: OUR GUIDE TO CURRENT STATISTICS AND THE SUPPLEMENT TO OUR HEART AND STROKE FACTS (2008), *available at* http://www.americanheart.org/downloadable/heart/1200082005246HS_Stats%202008.final.pdf; Ctr. for Disease Control (CDC), Nat’l Ctr. for Health Stat., Heart Disease, <http://www.cdc.gov/nchs/fastats/heart.htm> (last visited May 5, 2008); HealthCastle, Good Fats and Bad Fats, <http://www.healthcastle.com/goodfats-badfats.shtml> (last visited July 13, 2008).

411. CDC, *supra* note 410.

risks.⁴¹² Most troubling is that scientists agree that the tripling in childhood obesity rates over the past few decades will lead to a “tsunami of heart disease” by 2035 with a heart disease rate increase of no less than 16%. Rapid changes in food and farm policies are thus necessary to protect our nation’s children.⁴¹³

Higher rates of childhood obesity have also resulted in dramatic rises in asthma cases.⁴¹⁴ The Farm Bill has a double impact on these asthma rates by subsidizing fat-laden and sugar-filled obesity traps while also promoting industrial agriculture that pumps out a large portion of our nation’s air pollution—a fact borne out fully in Part III. More than 20 million Americans, 9 million of which are children under the age of eighteen, have been diagnosed with asthma.⁴¹⁵ The prevalence of asthma for the general population increased 75% from 1980 to 1994 and increased 160% for children under the age of five.⁴¹⁶ Many underestimate the seriousness of asthma, but it “accounts for one-quarter of all emergency room visits each year . . . [and results in] approximately 5,000 deaths annually.”⁴¹⁷ The direct medical costs of asthma are more than \$10 billion each year and asthma causes 40,000 Americans to miss school or work every day.⁴¹⁸ Since obesity is a prominent risk factor for asthma, because it causes lower lung capacity, airway hyperresponsiveness, and higher breathing frequencies,⁴¹⁹ it is imperative that Congress utilize the Farm Bill and other policies more effectively to prevent asthma to the greatest extent possible.

Obesity is also strongly linked with certain types of cancers. In 2001, scientists concluded that “cancers of the colon, breast

412. Am. Heart Ass’n, Obesity and Overweight, <http://www.americanheart.org/presenter.jhtml?identifier=4639> (last visited May 5, 2008).

413. Baker et al., *supra* note 409; DeNoon, *Forecast: Tsunami of Heart Disease*, *supra* note 409.

414. See Gale Jurasek, *How Does Obesity Affect Asthma*, PULMONARY REV., July 2005, available at <http://www.pulmonaryreviews.com/jul05/obesityasthma.html>.

415. Am. Acad. of Allergy Asthma & Immunology, Asthma Statistics, http://www.aaaai.org/media/resources/media_kit/asthma_statistics.stm (last visited May 5, 2008).

416. *Id.*

417. *Id.*

418. *Id.*

419. Jurasek, *supra* note 414.

(postmenopausal), endometrium (the lining of the uterus), kidney, and esophagus are associated with obesity.”⁴²⁰ In addition, “[s]ome studies have also reported links between obesity and cancers of the gallbladder, ovaries, and pancreas.”⁴²¹ Each year, more than “41,000 new cases of cancer in the United States were estimated to be due to obesity . . . mean[ing] that [at least] 3.2% of all new cancers are linked to obesity.”⁴²² A recent scientific report using statistical analyses estimated that “14% of [U.S.] deaths from cancer in men and 20% of deaths in women were due to being overweight or obese.”⁴²³ The current thinking regarding the link between obesity and cancer is that insulin and the sex-hormone binding globulin, both of which function quite differently in people of normal weight and in individuals that are either overweight or obese, alter certain bodily mechanisms that present cancer risks.⁴²⁴ Although scientists are still working out the complex details of this link, the correlation between the two is very clear⁴²⁵ and it is time to combat these preventable cancers by forging new and better policies under the Farm Bill.

Diabetes, heart disease, asthma, and cancer are just a few of the obesity-related illnesses that affect much of our nation’s population. As rates of obesity continue to explode at record pace, so too will the emergency room visits, lost workdays and schooldays, and premature deaths of overweight individuals. Rather than attempting to attack each of these problems independently with a limited number of financial and institutional resources, the federal government and interested non-governmental organizations should pool their resources and address the single underlying problem of obesity head-on through Farm Bill reform. Such collaboration would lead to better food and farm policies that in turn would result in substantially lower

420. Nat’l Cancer Inst., Obesity and Cancer: Questions and Answers, <http://www.cancer.gov/cancertopics/factsheet/Risk/obesity#ques4> (last visited May 5, 2008).

421. *Id.*

422. *Id.*

423. *Id.*

424. *Id.*

425. *Id.*

rates of obesity and decreased incidences of obesity-related illnesses.

E. *The Effects of Commodity Agriculture on Domestic Hunger and Malnutrition*

At the same time that nearly two-thirds of Americans are overweight and 31% are obese,⁴²⁶ 40 million Americans suffer from food insecurity, missing meals on a regular basis.⁴²⁷ Food insecurity in the United States affects 12% of all households and households with multiple children suffer disproportionately from the inability to purchase food.⁴²⁸ Amazingly, the same Farm Bill that is responsible for the obesity epidemic by overfeeding Americans with a plentiful supply of fat-laden processed foods is also responsible for both childhood malnutrition and domestic hunger. As discussed at the beginning of this Part, the Farm Bill is the legislation that implements USDA nutritional programs aimed at feeding children and low-income families such as the Supplemental Nutrition Assistance Program, the WIC Program, and the National School Lunch Program. Also as discussed above, these programs have fallen well short of their nutritional goals, having turned our schoolchildren into disposals for surplus corn and other unhealthy subsidized commodity crops and provided families with so little financial support that they are forced to choose the cheaper foods at the supermarket, which we know to be the low-nutrient processed foods made from corn and other subsidized crops.⁴²⁹ Despite the fact that half of the Farm Bill's budget is targeted toward these nutritional programs,⁴³⁰ they are implemented poorly because they provide calories, but little to no nutrition. This bind leaves children malnourished both at home when their families are forced to opt for fatty, sugary foods because of their more attractive prices, and also at school, where their reduced or free lunches are nothing more than processed foods

426. IMHOFF, *supra* note 6, at 90.

427. *Id.*

428. *Id.*

429. Pollan, *You Are What You Grow*, *supra* note 1.

430. IMHOFF, *supra* note 6, at 22.

made from leftover scraps of surplus corn and other commodity crops.⁴³¹

Similarly, hunger under the Farm Bill is a prevalent concern, but the issue has remained mostly obscured from public scrutiny. Since more than a quarter of our nation's cropland is producing corn, but 66% of that corn is used for animal feed and much of the remainder is used for ethanol production, large swaths of cropland are being wasted on livestock and biofuel while millions of Americans go hungry at night.⁴³² As more farmers convert cropland into corn production solely for fuel and animal feed, less land is available to cultivate our nation's human food supply. Strangely, our government is subsidizing corn on these vast fields for fuel, livestock feed, and processed low-nutrient foods instead of cultivating fresh fruits, vegetables, and other food products that could assist those struggling to survive in a healthful manner. Isn't this contrary to one of the fundamental tenets of Franklin D. Roosevelt's initial Farm Bill, which, among other things, aimed to provide a secure food supply for all Americans?

As discussed in Part I, the Farm Bill has played a role in world hunger, especially in the developing world, by subsidizing surplus commodity crops and then dumping them on international markets to crush foreign competitors. It appears that the Farm Bill is also playing a large part in the domestic hunger crisis, its role getting larger by the year. As alluded to above, more land is being taken out of food production in the United States as the government heavily encourages corn cultivation for biofuel purposes through ever-larger ethanol subsidies.⁴³³ The new ethanol

431. CHICAGO COUNCIL, *supra* note 87, at 8 (explaining that in order to be more effective, the Farm Bill must formally link USDA nutritional programs to dietary and nutritional goals outlined by the USDA and must add more fruits and vegetables into all of these programs to meet the dietary recommendations of both the USDA and health experts); USDA, National School Lunch Program Fact Sheet, *supra* note 326 (noting that "foods are offered [to school lunch programs] only as they become available through agricultural surplus").

432. RUNGE, *supra* note 114.

433. Press Release, UNWFP, *supra* note 318; Brittany Sauser, *Ethanol Demand Threatens Food Prices*, MIT TECH. REV., Feb. 2007, available at http://www.technologyreview.com/read_article.aspx?ch=specialsections&sc=biofuels&id=18173&a; Philippa Jones, *Expanding U.S. Ethanol Market Provokes Food Price Surge*, FOOD USA, May 21, 2007, <http://www.foodnavigator-usa.com/news/ng.asp?n=76688-retail-prices-corn-biofuels>.

gold rush spurred by Farm Bill subsidies since 2002 has already resulted in substantial spikes in supermarket prices for foods such as rice, soybeans, wheat, cereal, meat, eggs, corn, corn derivatives such as tortillas, and other staple foods of the American diet.⁴³⁴ Therefore, the government must reform poor agricultural policies such as ethanol subsidies in order to re-focus the Farm Bill on one of its central goals of curbing hunger with a safe and secure food supply.

Based on the foregoing, it is critical for Congress to consider the significant and wide-ranging public health impacts of the Farm Bill. In addition to constantly fighting off the possibility of hunger and bacterial disease driven by agricultural policies, Americans are rapidly falling prey to obesity and obesity-related illnesses. Together, Congress and the USDA, the two entities charged with writing and implementing the Farm Bill, send confusing mixed messages to the American public. On the one hand, the USDA uses tools such as the Food Pyramid to instruct people to eat a variety of nutritious foods in order to attain good health.⁴³⁵ On the other hand, the Farm Bill creates a distorted market wherein processed foods based on unhealthy subsidized crops are the simplest supermarket choice for most Americans. Until these governmental institutions stop talking out of both sides of their mouths about health and nutrition, the impacts to our nation's public health will worsen dramatically from already record levels of Farm Bill-driven illness and disease.

VI. TOWARDS A MORE JUST AGRICULTURAL POLICY: SUBSIDIZING SUSTAINABLE AGRICULTURE

We have to produce food differently. The ADM/Cargill model of industrial agribusiness is heading toward its Waterloo. As oil and gas deplete, we will be left with sterile soils and farming organized at an unworkable scale. Many lives will depend on our ability to fix this. Farming will soon return much closer to the center of American economic life. It will necessarily have to be done more locally, at a smaller and finer scale, and will require

434. Press Release, UNWFP, *supra* note 318; Jones, *supra* note 433 (discussing price increases for eggs and meat).

435. USDA, Food Pyramid, *supra* note 330.

more human labor.⁴³⁶

Despite what many scientists and farmers think to be the best available farming practices for environmental protection and a nutritious food supply, our nation's agricultural policies under the Farm Bill have strayed quite far from these practices to placate the agribusiness and food processing industries. The average commodity crop farmer now produces enough corn and soybeans to feed at least 129 Americans some food item processed from his crops.⁴³⁷ However, that same commodity farmer sends no healthy fruits and vegetables to the market and amazingly can no longer feed his own family from his massive fields.⁴³⁸ Heavy corn-producing states such as Iowa now import more than 80% of the food consumed by the residents of those states.⁴³⁹ Our food production system under the Farm Bill, which should ideally encourage production of healthy food for our nation, is actually creating "food deserts" where food is difficult to come by and the food that is available consists of saturated fats and little to no nutrition.⁴⁴⁰

This system promotes larger and larger megafarms, but as Michael Pollan and other scholars note, we must remember the lessons learned by the Soviet Union as its national stability "foundered precisely on the issue of food."⁴⁴¹ The move to industrial agriculture prompted the Soviet collapse because the Soviets "sacrificed millions of small farms and farmers," but their system of industrial agriculture "never managed to do what a food system has to do: feed the nation."⁴⁴² Each day, the U.S. system

436. James H. Kunstler, *Ten Ways to Prepare for a Post-Oil Society*, CANADIAN NAT'L NEWSPAPER, Jan. 12, 2008, available at <http://www.agoracosmopolitan.com/home/Frontpage/2008/01/12/02127.html>.

437. POLLAN, *THE OMNIVORE'S DILEMMA*, *supra* note 57, at 34.

438. *Id.*

439. *Id.*

440. *See generally id.*

441. *Id.* at 256; ROBERT W. CAMPBELL, *THE SOVIET-TYPE ECONOMICS: PERFORMANCE AND EVOLUTION* 65 (1974) (calling the inefficient Soviet industrial agricultural system "unreliable, irrational, wasteful, unprogressive—almost any pejorative adjective one can call to mind would be appropriate"); CAMPBELL R. MCCONNELL, *ECONOMICS: PRINCIPLES, PROBLEMS AND POLICIES* 900 (1975) (arguing that the Soviet industrial agricultural system was "something of a monument to inefficiency").

442. POLLAN, *THE OMNIVORE'S DILEMMA*, *supra* note 57, at 256.

resembles the failed Soviet industrial agricultural system slightly more as it moves away from the 1940s American system, which was composed of farms roughly homogenous both in small size and in variety of crops and on-farm livestock.⁴⁴³ Although there are very stark differences between the political, social, and economic structures of the former Soviet Union and modern American society, one thing is clear from the comparison: our commodity crop farming system is no longer sensible, assuming it ever made sense to begin with. Given the widespread environmental degradation and public health concerns that are caused by our current federal agricultural policies, it is time for Congress to utilize the Farm Bill to effectively overhaul our agricultural system.⁴⁴⁴

Fortunately, there are diverse policy solutions available to revise this system and remedy past wrongs. The remainder of this Article will emphasize one promising policy solution that can mitigate and potentially solve the major problems of industrial commodity crop agriculture in the United States: subsidizing sustainable agriculture to normalize the market. Although a truly free market without subsidies would be ideal,⁴⁴⁵ such as the system currently operating in New Zealand,⁴⁴⁶ the vast subsidy infrastructure currently embedded in the Farm Bill would be difficult to pull out from under the feet of farmers that depend on those subsidies to survive. As seen in previous Parts, more than

443. IMHOFF, *supra* note 6, at 38.

444. See POLLAN, THE OMNIVORE'S DILEMMA, *supra* note 57, at 256-57 (discussing the benefits of a more local agricultural system as compared to the current industrial agricultural system).

445. See, e.g., Eliot Coleman, Four Season Farm, <http://www.fourseasonfarm.com/main/authentic/beyond.html> (last visited Feb. 28, 2009). Many scholars such as Eliot Coleman believe that any nationalized system of agriculture—conventional or organic—is inefficient. Thus, these critics advocate for a localized agricultural system with no national standards, subsidies, or framework for regulating agriculture. *Id.* While I agree that this might be the ultimate goal, I think that intermediate steps such as the proposed sustainable agriculture subsidies must occur first in order to shift the system away from the current unjust framework of Farm Bill subsidies solely for large commodity crop producers.

446. IMHOFF, *supra* note 6, at 80-83. New Zealand is one of the few nations that has eliminated agricultural subsidies altogether. In 1984, New Zealand eliminated all subsidies for farming and the results have been very positive. In fact, New Zealand has seen “an energizing transformation of the food and farming sectors . . . [and p]rofitability, innovation, and agricultural diversity have returned to farming.” *Id.* Both farm output and farm income are on the rise in New Zealand. *Id.*

seventy years of Farm Bill policy have led to vast changes in the American agricultural system by forcing capital allocation and aggregation in large farms and few crops. Therefore, instead of immediately eliminating the Farm Bill subsidies on which many farms now rely for survival, Congress should shift a fair portion of these subsidies to farmers implementing sustainable agricultural methods. As discussed in Part II, past conservation programs erred in only targeting large commodity crop growers. A more workable policy solution, however, would be to offer these subsidy incentives to *all* farmers based on their farming practices, regardless of what crop they cultivate. This would create a much more just system than the current subsidy framework that excludes 60% of American farmers from any subsidies whatsoever.⁴⁴⁷

Coincidentally, farmers that never see Farm Bill subsidies are typically the same farmers that grow our nation's healthy fruits and vegetables. California provides a vivid example of the current failures of the Farm Bill's subsidy program. "With 2,000 miles of waterways, nearly 30,000 farms, and over \$30 billion in annual on-farm revenues," California is the leading state in terms of annual agricultural sales.⁴⁴⁸ Despite topping the nation's agricultural sales, more than 90% of California's farmers receive no agricultural subsidies.⁴⁴⁹ Of the few farmers that do receive Farm Bill subsidies, most are cotton and rice farmers.⁴⁵⁰ How important are these neglected Californian farmers to the American marketplace? Californian farmers are invaluable to our nation's agricultural system because the state "contributes more than 12.5% of the total U.S. agricultural market value and nearly half of all fruits, nuts, and vegetables."⁴⁵¹ By ignoring these farmers and precluding them from receiving Farm Bill subsidies, Congress is prioritizing monocultures of corn, soybean, wheat, cotton, and rice at the expense of sound agricultural, nutritional, and environmental practices.⁴⁵²

447. *Id.* at 59.

448. *Id.*

449. *Id.*

450. *Id.*

451. *Id.*

452. *Id.*

Sustainable agriculture, however, can change these policies for the better. First, a definition for “sustainable agriculture” is appropriate since the term can be somewhat amorphous in a vacuum. According to leading sustainable agriculture scholar Dr. James Horne, sustainable agriculture “encompasses a variety of philosophies and farm techniques . . . [that] are low chemical, resource and energy conserving, and resource efficient.”⁴⁵³ Although it did little to encourage such agriculture, the 1990 Farm Bill defined sustainable agriculture as:

[A]n integrated system of plant and animal production practices having a site-specific application that will, over the long term, satisfy human food and fiber needs; enhance environmental quality and the natural resource base upon which the agricultural economy depends; make the most efficient use of nonrenewable resources and on-farm/ranch resources; integrate, where appropriate, natural biological cycles and controls; sustain the economic viability of farm/ranch operations; and enhance the quality of life for farmers/ranchers and society as a whole.⁴⁵⁴

As most agricultural experts note, it is important to understand that “[s]ustainable agriculture does not mandate a specific set of farming practices.”⁴⁵⁵ Rather, sustainable practices vary from place to place depending on the ecosystem, precipitation, and other factors, but “[t]here are myriad approaches to farming that may be sustainable.”⁴⁵⁶ The more important overarching goal of sustainable agriculture is the “stewardship of both natural and human resources . . . includ[ing] concern over the living and working conditions of farm laborers, consumer health and safety, and the needs of rural communities.”⁴⁵⁷

Despite the promise of sustainable agriculture to solve the numerous problems discussed in Parts I, II, III, IV, and V, the Farm Bill has been surprisingly silent as to how to encourage of such practices. This is likely due to pleas from certain campaign contributors that are also the largest beneficiaries of Farm Bill

453. HORNE & MCDERMOTT, *supra* note 176, at 55.

454. PRESIDENT’S COUNCIL ON SUSTAINABLE DEV., *supra* note 223, at 3.

455. HORNE & MCDERMOTT, *supra* note 176, at 59.

456. *Id.*

457. *Id.*

subsidies: agribusiness and food processors.⁴⁵⁸ As early as 1994, the President's Council on Sustainable Development chartered a Sustainable Agricultural Task Force composed of agricultural experts to present strategies that could alleviate the problems identified in this Article.⁴⁵⁹ In the mid-1990s, the Task Force made key policy recommendations that were intended to serve as critical updates to the Farm Bill.⁴⁶⁰ Ignored for more than a decade, it is now time for Congress to listen to those experts and other proponents of sustainable agriculture in order to address the most serious environmental and health problems triggered by the Farm Bill.

A. *Sustainable Agriculture Already Exists on a Small Scale*

Of the nearly twenty billion dollars in annual Farm Bill subsidies, eighty-four percent currently go to the five primary commodity crops of corn, rice, wheat, cotton, and soybeans.⁴⁶¹ Shifting a large portion of these subsidies to farmers who implement sustainable farming practices would greatly impact the market by bringing supermarket prices of sustainably-farmed goods down while nudging supermarket prices of foods based on industrial-farmed corn and soybean up to more reasonable levels, i.e., prices that more closely reflect the market prices that would appear in the absence of heavy Farm Bill subsidies. A critical step would involve tapping into the knowledge of scientists, USDA agricultural experts, and non-profit advocates in order to set specific and concrete standards of what constitutes a sustainable

458. See *supra* notes 168-70 and accompanying text.

459. PRESIDENT'S COUNCIL ON SUSTAINABLE DEV., *supra* note 223.

460. *Id.* at 3-8. To begin working towards achievement of agricultural sustainability in the United States, the Task Force reached consensus on nine key policy recommendations: (1) integrate pollution prevention and natural resource conservation into agricultural production, (2) increase the flexibility for participants in commodity programs to respond to market signals and adopt environmentally sound production practices and systems, thereby increasing profitability and enhancing environmental quality, (3) expand agricultural markets, (4) revise the pricing of public natural resources, (5) keep prime farmlands in agricultural production, (6) invest in rural communities' infrastructure, (7) continue improvements in food safety and quality, (8) promote the research needed to support a sustainable U.S. agriculture, and (9) pursue international harmonization of intellectual property rights. *Id.*

461. IMHOFF, *supra* note 6, at 60.

agricultural practice for purposes of receiving subsidies.⁴⁶² Although this step would likely be controversial, it is clear that such subsidies are needed to better protect the natural environment and the public's health.⁴⁶³

Great examples of agricultural methods that could potentially fall under sustainable agriculture for subsidy purposes are no-till farming, cover cropping, crop rotation, residue mulching, elimination of most or all agrochemical fertilizers, significant water usage reduction, nitrogen fixing through on-farm manure use, measurable energy reduction per acre farmed, non-use of pesticides and herbicides that break down slowly in the environment, greater use of integrated pest management, contour farming, and local market sales to reduce transportation, among others.⁴⁶⁴ Each of these farming practices promotes sustainability by eliminating harmful inputs into the soil, reducing pollution into our ecosystems, or preventing some harmful result that would

462. This is a very important step that would have to be developed thoroughly prior to implementation. In addition to setting concrete standards for sustainable agricultural practices, experts and regulators would also have to create a defined spectrum on which the environmental and public health benefits of a farmer's sustainable practices can be measured in order to receive one's fair share of subsidies. For example, a large corn farm in Iowa might allege that it uses a single practice deemed "sustainable" by the regulatory scheme such as crop rotation, which benefits both the soil and local water sources as runoff is reduced. Although this farm would likely receive subsidies for undertaking this practice because it is "sustainable" and benefits the environment, the farm would likely receive considerably less in subsidies than a similarly-situated large corn farm that instead decides to diversify its crops, reduce pesticide use, utilize integrated pest management, and begin selling to local markets to reduce transportation and fossil fuel use. Despite the fact that both are benefiting the environment and public health, the second farm clearly has undertaken sustainable practices that are not only greater in number, but more importantly, greater in positive impact to the natural environment and public health. Due to this difference in magnitude, the second farm would be rewarded with greater subsidies for its efforts.

463. See, e.g., Michael Pollan, *The Food Issue: Farmer in Chief*, N.Y. TIMES MAG., Oct. 9, 2008, available at <http://www.nytimes.com/2008/10/12/magazine/12policy-t.html>. In fact, the 2008 Farm Bill might have taken the first step toward such a sustainable subsidy system with the creation of the Conservation Stewardship Program, which rewards farmers for making wise agricultural decisions that provide off-farm benefits. Despite the program's promise, however, Pollan notes that legislators "need to move this approach from the periphery of our farm policy to the very center." Until such a system becomes the foundation of the Farm Bill, our nation will not maximize its agricultural potential to "grow crops and graze animals in systems that will support biodiversity, soil health, clean water and carbon sequestration." *Id.*

464. Pimentel et al., *supra* note 259; see generally HORNE & MCDERMOTT, *supra* note 176.

otherwise be achieved in the absence of such a practice. Not only would these practices create a healthier environment in which we all live because of the reduction in environmental pollution, but these farming practices would also have the simultaneous effect of producing a healthier food product for the consumer.⁴⁶⁵

Many readers are probably thinking that sustainable agriculture sounds very similar to organic agriculture. Organic produce is typically cultivated using sustainable agricultural methods and is then certified by a qualified entity such as the USDA.⁴⁶⁶ There is a very important and distinct difference, however, between sustainable agriculture and organic agriculture: sustainable agricultural practices *always* have the goal of protecting public health and preserving the environment because sustainability is the foundation.⁴⁶⁷ Since what constitutes “organic produce” is merely a construction of a certifying entity such as the USDA, it is important to remember that the standards imposed by these entities are always subject to change and may not reflect sound agricultural, environmental, or health-based decision making because of the influence of agribusiness or other interested parties.⁴⁶⁸ Since the beginning of our National Organic Program, “the [S]ecretary of [A]griculture went out of his way to say that organic food is no better than [industrial-farmed] conventional food.”⁴⁶⁹ To appease agribusiness interests that rely on Farm Bill-supported industrialized farming, the USDA secretary made clear his opinion that “[t]he organic label is a marketing tool . . . [and] is not a statement about food safety . . . nutrition or quality.”⁴⁷⁰

465. See, e.g., Alyson E. Mitchell et al., *Ten-Year Comparison of the Influence of Organic and Conventional Crop Management Practices on the Content of Flavonoids in Tomatoes*, 55 J. AGRIC. FOOD CHEM. 6154 (2007), available at <http://pubs.acs.org/cgibin/sample.cgi/jafcau/2007/55/i15/pdf/jf070344+.pdf?isMac=706237> (concluding that sustainable organic farming practices with tomatoes resulted in much higher levels of healthy flavonoids as compared to nitrogen-fertilized, conventionally produced tomatoes).

466. USDA, National Organic Program, <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateA&navID=NationalOrganicProgram&leftNav=NationalOrganicProgram&page=NOPNationalOrganicProgramHome&acct=nop> (last visited May 6, 2008).

467. HORNE & MCDERMOTT, *supra* note 176.

468. See POLLAN, *THE OMNIVORE'S DILEMMA*, *supra* note 57, at 178-79.

469. *Id.* at 178.

470. *Id.* at 179.

Based on the mounting evidence gathered from recent studies, however, sustainably-farmed organic produce appears to outpace its industrial-farmed conventional counterparts in terms of health benefits.⁴⁷¹ In fact, many consumers have become aware of both the health benefits and the environmental benefits of buying organic: in 2006, nearly \$17 billion in U.S. sales were attributed to organics.⁴⁷² Despite this accomplishment, less than 3% of agricultural sales during 2006 were for organic products,⁴⁷³ due to the price distortion caused by Farm Bill subsidies that prioritize non-organic commodity crops and make them appear cheaper at the market than their organic counterparts. The USDA and agribusiness have attempted for years to use subsidies as a way to keep commodity crops cheap as compared to organic alternatives,⁴⁷⁴ but a new trend seems to be starting that might be just as disturbing—large agribusiness companies such as Monsanto, Wal-Mart, and Cargill are recognizing the gaining success of organic agriculture and are joining the market.⁴⁷⁵ Although this is positive in theory because it should lead to larger overall production of nutritious organic foods farmed with sustainable methods, it also provides an avenue for agribusiness to commandeer organic standards in the same way that it has the Farm Bill.⁴⁷⁶ It is not far-fetched to think that some of these larger companies will manipulate the USDA's organic standards in a bait-and-switch format that would result in "organic" produce that closely mirrors current conventional produce from industrial

471. *Id.*; Mitchell et al., *supra* note 4654; *Study Hails Organic Food Benefits: Organic Food Has a Higher Nutritional Value than Ordinary Produce, a Study by Newcastle University Has Found*, BBC NEWS, Oct. 29, 2007, http://news.bbc.co.uk/2/hi/uk_news/england/tyne/7067226.stm (reporting that one of the largest studies of sustainably-farmed organic agriculture ever conducted has found up to 40% more of healthful antioxidants in organic fruit and vegetables as compared to non-organic competitors farmed alongside their organic counterparts).

472. Organic Trade Ass'n, 2007 Press Releases: U.S. Organic Sales Show Substantial Growth, http://www.organicnewsroom.com/2007/05/us_organic_sales_show_substant_1.html (last visited Feb. 28, 2009).

473. *Id.*

474. POLLAN, *THE OMNIVORE'S DILEMMA*, *supra* note 57, at 178-79.

475. *See id.* at 145-84; *see* SAMUEL FROMARTZ, *ORGANIC INC.: NATURAL FOODS AND HOW THEY GROW* 188 (2006) (discussing the multibillion-dollar organic food business, in which more than half of all organic sales now come from only the largest 2% of organic farms owned by Kraft, General Mills, Monsanto, and other corporations).

476. *See* POLLAN, *THE OMNIVORE'S DILEMMA*, *supra* note 57, at 145-84.

farming. In fact, many scholars claim that this has already occurred in the twelve years since the emergence of national organic standards.⁴⁷⁷ Therefore, the public must stay vigilant in protecting the integrity of organic standards as part of a new push to subsidize sustainable agriculture and to reap the benefits of such agriculture.

B. *Expected Success of Scaling Up Sustainable Agriculture with Farm Bill Subsidies*

By moving away from corn and commodity crop subsidies in favor of paying farmers for employing some of the sustainable agricultural methods enumerated above, Congress will foster a much more effective piece of legislation that is more aligned with the original goals of the Farm Bill. As seen with our nation's massive corn production tied solely to subsidies, farmers will farm wherever the money is. If sustainable agriculture is what results in subsidies, sustainable agriculture will likely be what farmers undertake on their farms in order to survive. Further, all available data indicates that many farmers genuinely want to grow healthier foods, maintain their communities, and conserve their natural ecosystems, but they have been pressured to farm corn and other commodity crops because that is where past profits could be garnered.⁴⁷⁸ Although most farmers in the United States do not

477. See, e.g., Eliot Coleman, *supra* note 444 ("Now that the food-buying public has become enthusiastic about organically grown foods, the food industry wants to take over. Toward that end the USDA-controlled national definition of 'organic' is tailored to meet the marketing needs of organizations that have no connection to the agricultural integrity 'organic' once represented. We now need to ask whether we want to be content with an 'organic' food option that places the marketing concerns of corporate America ahead of nutrition, flavor and social benefits to consumers."); see generally FROMARTZ, *supra* note 475 (highlighting the controversies surrounding organic certification that have been caused in large part due to the emergence of big corporations in the organic market and the stark contrasts between these corporations and the small growers that initially sparked the organic movement); JOEL SALATIN, *HOLY COWS AND HOG HEAVEN: THE FOOD BUYER'S GUIDE TO FARM FRIENDLY FOOD* (2004) (encouraging consumers to purchase foods from local growers as opposed to purchasing organic foods from large corporations).

478. NAT'L PUB. POL'Y EDUC. COMMITTEE, *supra* note 175, at v-viii (illustrating that many farmers support the current commodity subsidy program despite the fact that such a program undermines other values highly supported by the same farmers such as environmental protection, financial payments for small farms, compliance with WTO rules, and better food safety); see also Wise, *supra* note 94, at 9 (concluding that, despite revenues garnered through subsidized corn and soybean production in the past,

want Farm Bill subsidies eliminated or phased out,⁴⁷⁹ farmers “show[] strong support for programs focused on conservation” and seem very concerned about the status of the natural environment.⁴⁸⁰ This is not surprising considering the interdependent relationship between healthy farms and a healthy environment: long-term farm health requires a high functioning local ecosystem that can sufficiently supply all of a farm’s needs. To prevent degradation of this important ecosystem, which suffers from “the tragedy of the commons”⁴⁸¹ under the current Farm Bill subsidy regime, the proposed sustainable agriculture subsidy system will pay farmers to protect this common pool resource.

A related issue is whether farmers are willing to transition from solely growing corn or other commodity crops to planting a diversity of healthier crops under a sustainable agriculture subsidy program. It seems that farmers would be willing to do so both financially and for the viability of their farms and families. Financially speaking, every consumer dollar spent on a corn-based product in the supermarket results in only four cents reaching the farmer that produced that corn because of the large number of middlemen such as Cargill, ADM, Coca-Cola, and PepsiCo.⁴⁸² This is starkly different for whole foods such as green vegetables, fruits, and eggs, where the respective farmer receives forty cents for every supermarket dollar spent.⁴⁸³ Thus, it makes financial sense for farmers to indulge in the cultivation of healthier produce and whole foods once sustainable agriculture subsidies are put into place because these farmers will receive a significantly higher percentage of supermarket sales and because of the offsetting economic effect of being able to feed one’s family with the farm’s nutritious and diverse crops.

“diversified family farms [would be much] more competitive relative to [food processors and] industrial livestock operations” if agricultural subsidies were altered so that the price of crops “more accurately reflected costs [paid by the farmer]”).

479. NAT’L PUB. POL’Y EDUC. COMMITTEE, *supra* note 175, at vi.

480. *Id.* at vi-vii.

481. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968) (explaining that a “tragedy of the commons” occurs when a common resource (e.g., an ecosystem, air, or water) is degraded by individual users of that resource (e.g., farmers) as each user maximizes his personal benefit while sharing the burden of his resource use (e.g., pollution) among all of users of the commons).

482. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 95.

483. *Id.*

Shifting to anticipated environmental impacts, sustainable agriculture will greatly help to repair local ecosystems, boost farmers' yields as the ecosystem improves, and mitigate the degradation caused by decades of mechanized agriculture under the Farm Bill. As farmers well know, sustainable agriculture includes polycultures and crop rotations that are essential to protect soils from erosion and streambeds from sedimentation.⁴⁸⁴ Farmers have long recognized the need for better farming practices to enhance environmental protection.⁴⁸⁵ When the USDA has given farmers flexibility to diversify their crops into polycultures and yet retain their full commodity subsidies, many farmers have taken advantage of this flexibility and planted non-commodity crops on nearly half of the land available for diversification.⁴⁸⁶ Additionally, sustainable agricultural systems do not rely on harmful chemical inputs of fertilizers or toxic pesticides that pose serious threats to both humans and wildlife.⁴⁸⁷ Further, studies indicate that sustainable farming systems "use 30% to 70% less energy per unit of land than conventional systems, a critical factor in terms of global warming and eventual fossil fuel shortages."⁴⁸⁸ Since subsidizing sustainable agriculture will result in more polyculture and thus more robust and diverse local food supplies, less transportation will be needed and will result in "reduced energy consumption, less processing and packaging, and higher nutritional values" which are lost during storage and transportation.⁴⁸⁹

Additionally, as corn subsidies are moved elsewhere, the lack of available corn will also gradually force a reconfiguration of the CAFO industry. Fewer livestock animals will be bred for meat

484. See generally Pimentel et al., *supra* note 259.

485. PRESIDENT'S COUNCIL ON SUSTAINABLE DEV., *supra* note 223, at 5 ("In 1990, Congress passed legislation that allowed farmers who had signed up for a particular commodity program—for example, the wheat program—to plant some of their land in a crop other than that specified by the program. In response, farmers reduced the number of acres under monoculture and diversified their crops. By 1994, approximately 42 percent of the land on which farmers were allowed to grow whatever they chose was planted in crops other than those specified by the commodity program in which the farmers were enrolled.").

486. *Id.*

487. IMHOFF, *supra* note 6, at 143.

488. *Id.*

489. *Id.*

production as corn prices return to market rates, which will likely result in an increased proportion of cattle being transitioned back to their native grass-fed diets because of the cost-prohibitive nature of raising grain-fed cattle in the face of decreasing corn subsidies. This will vastly improve not only water and air quality, but also the health of Americans consuming meat and meat-based products.⁴⁹⁰ Of course, the supermarket price of meat and meat-based products will rise slightly as the agricultural market normalizes under this new policy, but the all-around health benefits that will be gained from shifting from corn-fed meat to grass-fed meat will far exceed the price increase that is likely to occur.⁴⁹¹

On other public health fronts, sustainable agriculture will produce similarly positive results. Due to the reduction in fertilizers and pesticides, there will be much lower health risks for farm laborers and consumers. Further, sustainable agricultural practices have been shown to result in relatively similar or higher yields of crops as compared to their industrial counterparts, meaning that a safe and secure food supply would exist under the new Farm Bill system.⁴⁹² Subsidizing sustainable agriculture would also result in more vegetables and fruits since there would be governmental incentives to grow these healthy foods. At the same time, less subsidy emphasis on corn-based and soy-based fatty foods would ultimately equalize the market and these low-nutrient foods would no longer cost nearly one-fifth the price per calorie of carrots and other vegetables. Additionally, farmers opting for sustainable methods “are more likely to grow rare breeds and varieties carefully selected for their specific growing conditions (rather than [for their] shipability, yield, and uniformity).”⁴⁹³ Since incentivizing sustainable agriculture will result in stronger, more competitive local food markets instead of the current “food

490. Ponnampalam et al., *supra* note 348 (concluding that grass-fed cattle have much higher levels of healthy fats and other compounds while grain-fed cattle have much higher levels of unhealthy fats and compounds).

491. *Id.* Although the *supermarket price* of meat will likely rise as a larger proportion of cattle becomes grass-fed, the *overall price* of grass-fed meat will likely be lower for the average consumer considering that *in addition to the supermarket price*, consumers pay for corn-fed meat four distinct times under the current system—through (1) federal tax dollars subsidizing corn, (2) individual medical costs, (3) federal tax dollars subsidizing medical costs for others, and (4) federal tax dollars for environmental cleanup costs.

492. IMHOFF, *supra* note 6, at 143.

493. *Id.*

deserts” that abound, nutritious produce will be cheaper and our children’s lunches at school will increasingly be based on fruits and vegetables instead of leftover corn, tater tots, and HFCS-laden ketchup.⁴⁹⁴ The more quickly we can implement subsidies for sustainable agriculture, the faster we can wean our nation off of fatty foods and finally make a unified stand against obesity.

Subsidizing sustainable agriculture will also have large ripple effects throughout the United States and the world. Both domestic and international hunger will be lessened as more land—mostly land that is currently cultivated for corn production and other commodity crop production—becomes available for production of healthy fruits and vegetables, which are much more efficient means of harnessing the sun’s energy and converting it into calories for human consumption. Since more American land will be available to produce domestic food and because sustainable agriculture will see less crops wasted for animal feed or processing, more foreign lands will be available for local food production rather than having to commit these lands to cultivating food for American consumption. Further, as a result of having less American corn, cotton, wheat, rice, and soybeans on the global market, the United States will find itself in better standing with quasi-governmental entities such as the World Trade Organization,⁴⁹⁵ and foreign farmers will have more opportunities to fairly compete in their own markets. As global agricultural markets stabilize, less immigration to the United States will occur from Central America because farmers will be able to survive on their plots of land in the absence of subsidy-induced trade distortion. Finally, rural farming communities will be able to sustain some semblance of their past strength, which author and agriculturist Wendell Berry argued could only be regained with a “revolt of local small producers and local consumers against the global industrialism of the corporation.”⁴⁹⁶ Thus, the time is now for a revolution—a truly “green” revolution against our nation’s unjust agricultural

494. See Neil D. Hamilton, *Putting a Face on Our Food: How State and Local Food Policies Can Promote the New Agriculture*, 7 *DRAKE J. AGRIC. L.* 407, 426-27 (2002).

495. *INST. FOR AGRIC. & TRADE POL’Y*, *supra* note 103.

496. POLLAN, *THE OMNIVORE’S DILEMMA*, *supra* note 57, at 254.

policies, which can only end when the Farm Bill once again protects our nation's farmers, the natural environment, and ultimately, the American public.

CONCLUSION

The Farm Bill originated as a temporary fix to protect small farmers during the farm crisis of the early 1930s. Although it met its primary goal of bringing the nation back to stability, the tide gradually turned as profit-seeking corporations co-opted the Farm Bill and excluded the small farmer whom the bill initially sought to protect. For nearly the past half-century, agricultural subsidies for a select few commodity crops have wreaked havoc on every facet of our nation's natural environment as industrial farming has taken hold. These harmful agricultural policies have also had detrimental impacts on our nation's public health, evidenced by the array of illnesses now directly linked with consumption of foods made cheap and available by the Farm Bill.

The scars and bruises left on our nation's environment and health in the wake of poor farming policies will take years to heal. Although there is no "silver bullet" that can immediately reverse these vast problems, incentivizing sustainable agriculture shows much promise because it has the potential to touch so many sectors of society and because it has the ability to nurture our nation's environment, health, and communities in the best interest of the public. Thus, the public must pressure Members of Congress to reform the Farm Bill and act on behalf of their constituents rather than agribusiness. To repeat the words of Rachel Carson:

We urgently need an end to these false assurances, to the sugar-coating of unpalatable facts. It is the public that is being asked to assume the risks . . . The public must decide whether it wishes to continue on the present road, and it can do so only when in full possession of the facts.⁴⁹⁷

Now that this Article has exposed all of the "unpalatable facts," the public must decide whether it wishes to continue on the present road. The present road is more of the same: Farm Bill

497. CARSON, *supra* note 2.

subsidies for corn and other commodity crops, immense environmental destruction, and an ever-worsening public health crisis. In contrast, the road less traveled is an alternative system built on sustainable agriculture, environmental stewardship, improved health and quality of life, and protection of farm communities. The second road will likely require more effort and public support due to anticipated resistance from the powerful few that benefit from the current system. Despite this obstacle, however, in the immortal words of poet Robert Frost, opting to take the road less traveled would make all the difference.⁴⁹⁸

498. See ROBERT FROST, *The Road Not Taken*, in MOUNTAIN INTERVAL (1920), available at <http://www.bartleby.com/119/1.html>.