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GOODBYE FAMILY FARMS AND HELLO AGRIBUSINESS: THE
STORY OF HOW AGRICULTURAL POLICY IS
DESTROYING THE FAMILY FARM
AND THE ENVIRONMENT

I. INTRODUCTION

If the saying is true that you are what you eat, maybe it is time to think about what we are actually eating. When you stroll through any grocery store, you see aisles upon aisles full of packaged and processed foods that are representative of today's industrial food system.¹ The foods stocked in these aisles are diverse, affordable, and fully satiate our appetites.² If, however, we take a closer look at the health, vitality, sustainability, and policy behind the food we purchase, what we discover will be surprising.³

Where does our food come from? Surprisingly, it does not come from a peaceful, idyllic farm in Nebraska because United States farm production has shifted to larger operations, usually referred to as agribusinesses.⁴ Agribusinesses are industrial farming operations that are much bigger and produce significantly more products than smaller, family farms.⁵ Currently, "approximately ninety-eight percent of America's food supply is produced by

1. See *The Farm Bill: Food Policy in an Era of Corporate Power*, FOOD & WATER WATCH, 1 (Apr. 2007), <http://documents.foodandwaterwatch.org/FarmBill.pdf> [hereinafter *The Farm Bill*] (stating that supermarkets are stocked with same or similar selections, which are shipped thousands of miles).

2. Jodi Soyars 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, 3 (2007) (providing motivation for low-priced food by explaining that price dictates most consumers' purchasing decisions).

3. See *id.* (explaining how food is not as diverse or cheap as once thought).

4. See David Banker & Robert Hoppe, *Production Shifting to Very Large Family Farms*, AMBER WAVES (June 2005), available at <http://www.ers.usda.gov/AmberWaves/June05/Findings/ProductionShifting.htm> (explaining family farms' share of U.S. agricultural production fell by about a third between 1993 and 2003); see also *Large Agribusiness- Environmental Damage*, OM ORGANICS, <http://www.omorganics.org/page.php?pageid=101> (last visited Nov. 12, 2010) (describing agribusinesses as conglomerates subsidized by federal government and responsible for enormous land areas).

5. See *Agricultural Brief: Large Farms are Thriving in the United States*, BUREAU OF THE CENSUS (July 1996), http://www.agcensus.usda.gov/Publications/1992/outlying/ab_9601.pdf (providing statistics on agribusiness growth). Agribusinesses average approximately 1,542 acres in size while small farms average approximately 271 acres in size. *Id.*

agribusinesses.”⁶ The growth of these large-scale farms has led to an alarming decrease in the number of family farms.⁷

The loss of the family farm and the increase in industrial farms has created a plethora of environmental concerns.⁸ The current agricultural industry relies on the use of large amounts of water, fertilizers, pesticides, and fossil fuels.⁹ The use of these resources has severe environmental impacts on water, land, wildlife, and air.¹⁰ The shift to larger farms has also induced a transition to larger livestock operations.¹¹

Most Americans today purchase their meat from agricultural operations that raise animals in intensive confinement, such as “several thousand pigs or tens of thousands of chickens per barn.”¹² These operations are referred to as either animal feeding operations (AFOs) or concentrated animal feeding operations (CAFOs).¹³ AFOs and CAFOs are problematic because “[t]hey emphasize high volume and profit with little regard for human health, food safety, the environment, humane treatment of animals or the rural economy.”¹⁴ The greatest problem with raising so many ani-

6. Windham, *supra* note 2, at 4 (explaining how agribusinesses rely heavily on agricultural chemicals and factory style production methods).

7. See Jim Hanson, *A Phenomenological Case for the Family Farmer as an Environmental Steward*, 11 GREAT PLAINS RES. 347, 347-48 (2001), available at <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1571&context=greatplainsresearch> (describing mindset of family farmer). “From 1974 to 1997, the number of farms decreased from 2,314,000 to 1,912,000. . . .” *Id.* at 347.

8. For a discussion of the environmental concerns from industrial farms, see *infra* notes 64-163 and accompanying text.

9. William S. Eubanks II, *The Sustainable Farm Bill: A Proposal for Permanent Environmental Change*, 39 ENVTL. L. REP. NEWS & ANALYSIS 10493, 10497 (2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1410800 (providing thorough analysis of Farm Bill implications). The use of these elements makes industrial agriculture incredibly productive and environmentally destructive. See Windham, *supra* note 2, at 4.

10. Eubanks, *supra* note 9, at 10498 (listing resources most affected by industrial agricultural practices).

11. See Katherine Hessler & Tanith Balaban, *Agricultural Animals and the Law*, 26 GPSOLO 58, 59 (2009) (explaining how large scale operations created new techniques for animal handling that have led to vast environmental problems).

12. *Id.* (stating that intensive animal crowding is not traditional livestock farm and creates many legal issues); see also *Raising a Stink: Air Emissions on Factory Farms*, ENVTL. INTEGRITY PROJECT, 1 (July 2002), http://www.environmentalintegrity.org/pdf/publications/CAFOAirEmissions_white_paper.pdf [hereinafter *Raising a Stink*] (stating most Americans get their meat and milk from livestock grown on industrial farms).

13. Hessler & Balaban, *supra* note 11, at 59 (explaining method is called factory farming). The growth and slaughter of these animals is “carefully controlled by corporate formulas.” *Raising a Stink*, *supra* note 12.

14. *Campaign Issues*, ASK FOR CHANGE!, <http://www.askforchange.org/issues.htm> (last visited Nov. 12, 2010) [hereinafter *Campaign Issues*] (describing this meat

mals is the amount of waste they produce.¹⁵ High concentrations of animal waste result in “bad odors, flies, and chemical and infectious compounds in the air and water.”¹⁶

Unlike industrial farm operators, family farm operators have more reason to care about the environment around them.¹⁷ Family farmers have a close connection to their land and animals, making it less likely that these farmers will use environmentally-damaging farming methods.¹⁸ Because family farmers both live and work on their farms or ranches, they are continuously exposed to environmental hazards present.¹⁹ These farmers and their families breathe in chemicals, smell the waste, and drink the polluted water.²⁰ Farming is a way of life for them rather than just a way of making money, so family farmers are motivated to raise their crops and animals in the most environmentally sound and healthy way.²¹

The decrease in family farms is the result of the Farm Bill, a bill Congress has renewed every five years since 1933.²² The Farm Bill harms the agricultural environment through its subsidy program, which provides government money to farmers that grow certain types of crops.²³ These crops sell at an artificially low price because

production method as not sustainable). Smaller meat producers are harmed because CAFOs encourage consolidation in the animal production industry. *See Raising a Stink*, *supra* note 12, at 1.

15. *See* Hessler & Balaban, *supra* note 11, at 59-60 (highlighting need for new waste disposal methods). Factory farms actually generate more than 2.7 trillion pounds of manure a year. *Campaign Issues*, *supra* note 14.

16. Hessler & Balaban, *supra* note 11, at 59 (explaining animal waste build-up creates environmental problems). Animal waste also can have severe health consequences. *See Campaign Issues*, *supra* note 14. For example, manure from dairy cows is considered to be responsible for the Cryptosporidium contamination of Milwaukee’s drinking water in 1993, which killed more than 100 people and made 400,000 people sick. *Id.*

17. *See* Hanson, *supra* note 7, at 351-52 (citing diminishment of family farmers as part of problem).

18. *See id.* at 351-52, 355 (providing family farmer testimonials and noting farmers’ keen environmental awareness of water scarcity, water usage, animal waste, resilience of pests, land erosion, and other issues).

19. *See id.* at 351-52 (relating how employees who leave farm at night have less impelling reason to be conscious of environmental problems).

20. *Id.* at 351 (explaining that family farmers can tell when subtle environmental changes occur).

21. *See The Issues: Family Farms*, SUSTAINABLE TABLE, <http://www.sustainabletable.org/issues/familyfarms/> (last visited Nov. 12, 2010) [hereinafter *The Issues*] (identifying family farmers’ vested interest in their communities, making it more likely for them to use sustainable farming techniques to protect natural resources and human health).

22. *See* Eubanks, *supra* note 9, at 10494-97 (providing entire history of Farm Bill).

23. *See id.* at 10495 (stating subsidies have caused slow, painful death of farming in U.S.); *see also Farm Bill 101*, FOOD & WATER WATCH, <http://www.foodand>

the subsidy payments make up the price difference to the farmers.²⁴ The problem with this program is that five crops control the subsidy market — corn, cotton, rice, soybeans, and wheat — and these crops are predominantly controlled by large corporations.²⁵ This subsidy program has “snowballed into a legislative package of subsidized commodities that increasingly benefit[] the largest of agricultural producers.”²⁶ As a result, family farmers receive little or no assistance in the form of subsidies and are forced to struggle to survive.²⁷ This program 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.”²⁸

This Comment focuses on the environmental consequences of losing family farms. Section II of this Comment discusses the causes of this loss and the evolution of the Farm Bill.²⁹ Section III examines the environmental consequences from the loss of family farms.³⁰ Section IV discusses how the law has responded to this crisis.³¹ Finally, Section V provides various solutions to this farming problem.³²

II. HOW THE FAMILY FARM BECAME ENDANGERED

How did the American family farm reach a crisis point?³³ To answer this question, it is necessary to go back to the era of the

waterwatch.org/food/agricultural-policy/farm-bill/farm-bill-101 (last visited Nov. 12, 2010) [hereinafter *Farm Bill 101*] (noting farmers who grow specialty crops are not eligible for loans).

24. See Eubanks, *supra* note 9, at 10496-97 (describing causes of Farm Bill failure).

25. *Id.* at 10497 (expressing surprise that agribusiness receives billions of tax dollars in subsidies despite having record-setting profits).

26. *Id.* at 10495 (explaining that subsidies were originally enacted as temporary fix).

27. *Id.* at 10497 (stating mistaken belief that Farm Bill helps family farms “adds insult to injury”).

28. *Id.* at 10495 (blaming Farm Bill for death of family farms).

29. See *infra* notes 33-63 and accompanying text for a discussion of the history of agriculture in the United States and how use of the Farm Bill has led to the elimination of many family farms.

30. See *infra* notes 64-163 and accompanying text for a discussion of the environmental consequences of losing family farms.

31. See *infra* notes 164-78 and accompanying text for a discussion of how the current law has affected family farms.

32. See *infra* notes 179-223 and accompanying text for a discussion of solutions to prevent the disappearance of family farms.

33. See *The Issues*, *supra* note 21 (explaining that family farms are going out of business at alarming rate). There are now five million fewer farms than there were in the 1930s and, of remaining farms, only 565,000 are family operations. *Id.*

Great Depression.³⁴ During that time, one in four Americans lived on a farm, and the Depression hit the farm economy the hardest.³⁵ The reason for the massive impact on farming was a food surplus, which led to a fall in crop prices.³⁶ Crop prices eventually fell below their costs of production, leaving farmers unable to stay afloat.³⁷ At that point, Congress stepped in and created the Agricultural Adjustment Act of 1933, the first Farm Bill, to help the struggling farmers.³⁸ This Act had several goals:

[B]ring 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.³⁹

Under this program, the federal government established a loan system for storable farm products, such as corn, wheat, rice, and cotton.⁴⁰ The program established a target price based on the cost of production for each of the specified crops.⁴¹ If the crop price dropped below the target price, the farmer was able to use his crop as collateral and acquire a loan from the government instead

34. See Eubanks, *supra* note 9, at 10495 (recalling how Depression led to change in farm policy).

35. *Id.* at 10494 (explaining that farming economy was hit hardest because of convergence of bank closures, home foreclosures, drought, dust storms, and floods).

36. See *id.* (citing nation's overplanting and advances in mechanization and soil inputs as reasons for food surplus).

37. *Id.* (stating total farm income decreased by two-thirds between 1929 and 1932). At this point, "60 percent 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." *Id.*

38. *Id.* (identifying Farm Bill as part of President Roosevelt's New Deal agenda and temporary fix at point of enactment)

39. See Eubanks, *supra* note 9, at 10494 (recognizing 1933 Farm Bill intended to save small farming in America).

40. Windham, *supra* note 2, at 6 (referring to these crops as commodity crops); see also *The Farm Bill*, *supra* note 1, at 4 (explaining this system was used to stabilize crop prices by managing supply on market).

41. Windham, *supra* note 2, at 7 (noting how loans assisted farmers); see also Eubanks, *supra* note 9, at 10494 (discussing that Bill's main goal was to stabilize crop prices by weaning nation from its relationship with overproduction).

of putting the crop into an already weak market.⁴² This loan allowed the farmer to store his crop until the market improved, at which point he could sell it for a profit and repay the government loan plus the accrued interest.⁴³ If the crop price remained low, the farmer could opt to keep the loan and tender the crop to the government's federal granary to repay the loan.⁴⁴ This program effectively stabilized the nation's food prices and food supply.⁴⁵ Unfortunately, the introduction of these government loans, or subsidies, provided only artificial market support for farmers.⁴⁶

The Farm Bill's success continued until World War II.⁴⁷ By this time, modern technology developed, leading to new pesticides, herbicides, and agricultural mechanization.⁴⁸ This new technology led to overproduction and depressed crop prices, similar to the farm crisis during the Great Depression.⁴⁹ The government, however, did not decide to step in and save the small farmers.⁵⁰ "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

42. Windham, *supra* note 2, at 7 (identifying that farm program established non-recourse loan system).

43. *Id.* at 6-7 (describing method to prevent farmers from dumping crops into weak market); *see also* *The Farm Bill*, *supra* note 1, at 4 (explaining that reserve prevented prices from dipping too low in years of feast and too high in years of famine).

44. Windham, *supra* note 2, at 7 (revealing that program stabilized food prices and supply). "Whenever American farmers experienced bad harvests, the federal granary would sell its stored surpluses to the marketplace to insure Americans had food to eat and that the food prices stayed relatively stable." *Id.*

45. *Id.* (acknowledging general success of New Deal farm policy in achieving stated goals). Within three years of the Farm Bill's enactment, gross farm income increased by 50 percent. Eubanks, *supra* note 9, at 10494.

46. Eubanks, *supra* note 9, at 10494-95 (noting Farm Bill success resulted from government subsidies creating artificial market support). At the time the Farm Bill was first enacted, it was hailed as a great success. *Id.* at 10494.

47. For a discussion of why a change in farm policy occurred during World War II, *see infra* notes 48-51.

48. Eubanks, *supra* note 9, at 10495 (identifying this period as beginning of Green Revolution, which led to plant breeding and hybridization). Poisonous gases produced during World War II, such as napalm and Agent Orange, were converted into chemical pesticides after the war. *See* Windham, *supra* note 2, at 8.

49. Eubanks, *supra* note 9, at 10495 (relating how technological advances during World War II caused similar market conditions for agricultural products as Great Depression); *see also* Windham, *supra* note 2, at 8 (stating farms could now be managed on industrial principles which led to overproduction).

50. Eubanks, *supra* note 9, at 10495 (distinguishing governmental actions during Great Depression from those during post-World War II crisis); *see also* Windham, *supra* note 2, at 9 (revealing that businessmen and federal government swept in not to save farms, but to capitalize on overproduction by selling crops to foreign markets).

with other large farms and food processors to create the first agribusiness lobby.”⁵¹

As time went on, things only worsened for small, family farms.⁵² Agribusiness grew and created an incredibly powerful lobby that crafted favorable federal farm policies.⁵³ Agribusiness received its greatest support when President Richard Nixon appointed Earl Butz as his second Secretary of Agriculture.⁵⁴ Secretary Butz believed that farmers needed to “get big or get out” and “plant their fields from fencerow to fencerow.”⁵⁵ His beliefs permeated the policies that he enacted.⁵⁶ Secretary Butz had an “adapt or die” mentality, giving the growing agribusiness industry the strength to overpower unprofitable small farms that could no longer compete in the market.⁵⁷

Secretary Butz’s aggressive policies led to forest decimation and the draining of critical wetlands, “frequently with direct assistance and financial support from the [United States Department of Agriculture].”⁵⁸ Additionally, his policies pushed farmers to use a higher amount of toxic chemicals, causing increased watershed pollution and damage to plant and animal health.⁵⁹ These policies focused on large-scale industrial farming, forever transforming America’s agricultural system and the rural landscape, which previously contained profitable small farms.⁶⁰

51. Eubanks, *supra* note 9, at 10495 (summarizing development of agribusiness lobby); see *The Farm Bill*, *supra* note 1, at 2, 8, 10-11 (providing examples of agribusinesses with politically involved corporate members).

52. See *infra* notes 53-63 and accompanying text for a discussion of how family farms’ situation became progressively worse.

53. Eubanks, *supra* note 9, at 10495 (discussing how lack of farmers’ rights advocates allowed large mechanized farms and agricultural companies to achieve agribusiness-favorable farm policies).

54. See Windham, *supra* note 2, at 9-10 (explaining how Secretary Butz’s policies were advantageous for agribusiness).

55. *Id.* at 10 (referencing Secretary Butz’s belief that farmers should consider themselves agribusinessmen); see also Eubanks, *supra* note 9, at 10496 (noting that Secretary Butz encouraged large-scale megafarms that prioritize crop yields over environmental protection).

56. Eubanks, *supra* note 9, at 10496 (highlighting Secretary Butz’s enactment of policies favoring farm crop payments based on maximizing yields).

57. *Id.* (emphasizing Secretary Butz’s belief that farming was for big businesses).

58. *Id.* (explaining agricultural progress was measured solely by commodity crop increases).

59. *Id.* (clarifying that progress was only measured by crop yields). Also, the use of chemicals and machines turned farming into a simple process of inputs and outputs that allowed it to become a part-time or seasonal operation. Windham, *supra* note 2, at 11.

60. Eubanks, *supra* note 9, at 10496 (describing landscape as full of megafarms caring only about crop yields, not environment). Secretary Butz’s poli-

As time went on, the United States' agricultural policy began to rely heavily on farm subsidies.⁶¹ From 1970 to 1986, direct government payments to farmers increased from \$3 billion dollars a year to \$26 billion dollars a year.⁶² In 2002, a new Farm Bill was enacted and "repositioned U.S. Agribusiness as America's largest corporate welfare recipient and officially discarded any attempt to deregulate the agricultural economy."⁶³

III. WHY LOSING THE FAMILY FARM IS A BIG DEAL

The dramatic shift from small farms to large, factory-type farms led to a great deal of legal and environmental issues.⁶⁴ These issues include disputes over soil erosion and sedimentation; water pollution through runoff from fields and livestock operations; chemical air pollution; inhumane animal management practices; and others.⁶⁵ The U.S. Farm Bill's use of ever-increasing subsidies produced these issues through its encouragement of large-scale, monoculture megafarms.⁶⁶

A. Meat Production

Meat production in the United States has changed drastically over the past twenty years.⁶⁷ Instead of coming from small family farms, most meat now comes from industrial, factory farms.⁶⁸ These types of farms use CAFOs, operations that house tens of

cies caused family farms to die because they lacked the necessary financial resources and labor capabilities to survive. *Id.* "As part of this painful death, foreclosures and bankruptcies skyrocketed, rural suicides increased, and a farm exodus paralyzed the nation's agricultural regions." *Id.*

61. See Windham, *supra* note 2, at 11 (explaining that 1973 Farm Bill stopped non-recourse loan use and began paying farmers subsidies linked to crop yields, so farmers received more money as they produced more crops).

62. *Id.* (revealing that basic farm programs continued without any change despite Republicans advocating elimination of subsidies and Democrats supporting stricter supply controls).

63. *Id.* at 12 (noting 2002 Farm Bill gave industrial agriculture \$89.7 billion in commodity subsidies).

64. Hessler & Balaban, *supra* note 11, at 59 (levying responsibility for many of these issues on Secretary Butz's agricultural policies).

65. *Id.* (describing additional environmental issues such as salmonella, E. Coli, and Pfiesteria outbreaks).

66. Eubanks, *supra* note 9, at 10493 (encouraging Farm Bill reform).

67. *Campaign Issues*, *supra* note 14 (explaining shift in meat production methods); see also Hessler & Balaban, *supra* note 11, at 59 (stating production changes are due to trend toward larger farms).

68. See *Campaign Issues*, *supra* note 14 (emphasizing that industrial facilities produce majority of meat).

thousands of animals in intensive confinement.⁶⁹ This method of animal confinement allows factory farms to become the nation's primary meat producers.⁷⁰ For example, over the past fifty years, the number of hog farms has decreased from one million to 65,000, but overall hog production has increased.⁷¹

1. *The Clean Water Act*

The large number of animals confined in one small area generates a large amount of waste.⁷² For instance, "a single hog farm with 10,000 animals will produce as much waste as a city with a population of 100,000 people."⁷³ Waste disposal is a primary concern for factory farms.⁷⁴ The high concentration of waste can lead to terrible odors, swarms of flies, and the release of chemical and infectious compounds into the air or water runoff, resulting in significant health and environmental problems.⁷⁵

Due to the volume of waste that these factory farms produce in their water runoff, the Clean Water Act (CWA) is frequently implicated.⁷⁶ Waste discharges from animal feeding operations can de-

69. *Raising a Stink*, *supra* note 12, at 1 (stating animal growth, slaughter, and milk production are controlled by corporate formulas). It is important to note that "there is no federal legislation regulating the conditions of animals being raised on farms." Hessler & Balaban, *supra* note 11, at 60. Rather, the primary focus of federal law is the integrity of the food supply. *Id.*

70. *See Campaign Issues*, *supra* note 14 (explaining ten large corporations produce ninety percent of poultry). The use of CAFOs is considered to be more economically efficient because of its ability to "streamline the process of raising animals for food, including standardized feed for rapid weight gain and uniformity; genetic selection to accentuate traits, such as leanness, that create uniform meat products; and mechanization of feeding, watering, and other husbandry activities." *Putting Meat on the Table: Industrial Farm Animal Production in America*, PEW COMM'N. ON INDUST. FARM ANIMAL PROT., 2, <http://www.ncifap.org/bin/s/a/PCIFAPSmry.pdf> (last visited Nov. 12, 2010).

71. *Campaign Issues*, *supra* note 14 (highlighting factory farm growth).

72. *See Hessler & Balaban*, *supra* note 11, at 59 (discussing waste generated in CAFOs).

73. *Id.* (relating problems for neighbors, environment, workers, and animals); *see also Campaign Issues*, *supra* note 14 (stating factory farms produce 2.7 trillion pounds of waste per year).

74. Hessler & Balaban, *supra* note 11, at 59 (describing how nation's 238,000 feeding operations produced 500 million tons of manure in 2003); *see also Raising a Stink*, *supra* note 12, at 1 (explaining that CAFOs create vast amounts of manure, increasing harm to environment and public health).

75. Hessler & Balaban, *supra* note 11, at 59 (listing causes of significant health and environmental concerns); *see also* Tory H. Lewis, Note, *Managing Manure: Using Good Neighbor Agreements to Regulate Pollution from Agricultural Production*, 61 VAND. L. REV. 1555, 1561 (2008) (explaining high concentration of waste also results in nuisance suits for injuries CAFOs cause to neighboring property).

76. Hessler & Balaban, *supra* note 11, at 60 (explaining that CWA governs CAFOs). Factory farms have been defined as point sources of pollution under the

posit nutrients, such as nitrogen and phosphorus, and other pollutants, including bacteria, pesticides, antibiotics, and hormones, into waterways.⁷⁷ The CWA establishes the basic structure for preventing pollutant discharge into American waters and for maintaining quality standards for surface water.⁷⁸ The National Pollutant Discharge Elimination System (NPDES) within the CWA currently regulates CAFOs.⁷⁹ Under the NPDES, “[a]ny facility that meets the regulatory definition of a ‘CAFO’ as it was defined in the 1976 [version of the NPDES]. . . needs a permit”⁸⁰ The goal of the NPDES is to strengthen the CWA and other federal regulations prohibiting discharges from a CAFO.⁸¹ Unless authorized by the terms of the permit, the NPDES prohibits CAFO discharges, even if accidental.⁸²

Unfortunately, the use of permits has not produced the results the Environmental Protection Agency (EPA) had hoped, leading the EPA to enact new rules to better protect our nation’s water quality.⁸³ The new regulations require the owners of CAFOs to submit a nutrition management plan (NMP) for manure as part of the permit application.⁸⁴ The reason for the NMP requirement is that

CWA since 1972. Tarah Heinzen, Essay, *Stopping the Campaign to Deregulate Factory Farm Air Pollution*, 17 N.Y.U. ENVTL. L.J. 1482, 1486 (2009).

77. *Enforcement Initiatives for Fiscal Years 2008-2010: Clean Water Act: Concentrated Animal Feeding Operations*, EPA, <http://www.epa.gov/oecaerth/data/planning/priorities/cwacafo.html> (last visited Nov. 13, 2010) (explaining that waste in waterways impacts ecosystems and human health, including contamination of public and private drinking water supplies).

78. 33 U.S.C. § 1251 (2007) (regulating water pollutants). The CWA does not include a private right of action, forcing aggrieved parties to file a complaint with the EPA. Hessler & Balaban, *supra* note 11, at 60.

79. *U.S. Environmental Protection Agency - Oct. 2007 FY08-FY10 Compliance and Enforcement National Priority: Clean Water Act, Wet Weather, Concentrated Animal Feeding Operations (CAFOs)*, EPA, 1 (Oct. 2007), <http://www.epa.gov/compliance/resources/publications/data/planning/priorities/fy2008prioritycwa.pdf> [hereinafter EPA] (explaining NPDES program regulates through permits).

80. *Id.* at 2 (stating NPDES permit applications are only required from CAFOs that discharge or propose to discharge following Second Circuit decision in *Waterkeeper v. EPA*).

81. *See id.* (discussing how EPA plans to address discharges from CAFOs). There is a need to regulate because of inadequate manure management and a pattern of CWA noncompliance by CAFOs, making this pollution a national priority. *Id.*

82. *Id.* at 2 (stating that EPA estimates approximately forty three percent of the 19,000 CAFOs currently have permits).

83. Press Release, EPA, *New Requirements for Controlling Manure, Wastewater from Large Animal Feeding Operations* (Oct. 31, 2008), 2008 WL 4757285 (estimating new regulations will “prevent 56 million pounds of phosphorus, 110 million pounds of nitrogen, and 2 billion pounds of sediment from entering streams, lakes, and other waters annually”).

84. *Id.* (emphasizing EPA has never before required NMP).

“[m]anure contains the nutrients nitrogen and phosphorus, which, when not managed properly on agricultural land, can pollute nearby streams, lakes, and other waters.”⁸⁵ The NMP dictates how the CAFO operators must manage the manure on their land.⁸⁶ Concurrent submission of the permit application with the NMP enables the permitting authority reviewing the submission to incorporate and enforce the NMP conditions based on the permit terms.⁸⁷ The hope is that this change will prevent the runoff of excess nutrients into our nation’s waters.⁸⁸

Even with these new rules, water contamination from CAFOs remains a significant threat.⁸⁹ The waste storage structures that these farming operations use can break, spill or fail, releasing waste into nearby rivers, lakes, streams, and water supplies.⁹⁰ In 1995, for example, a waste lagoon burst in North Carolina, releasing thirty-five gallons of hog excrement sludge into the New River, endangering North Carolina residents and killing millions of fish in the river.⁹¹ Additionally, some CAFOs continue to violate the CWA by simply dumping waste into water systems.⁹² For example, in November of 2009, Schuiteman Feedlots paid a \$25,000 settlement to the government for violating the CWA by allowing manure and wastewater to discharge into the West Branch of the Floyd River in Sioux City, Iowa.⁹³

2. *Clean Air Act*

When imagining the odor omitted from five hundred tons of manure (the amount factory farms produce annually), one would expect the Clean Air Act (CAA) to be involved in the regulation of CAFOs. The barns where animals are housed release significant

85. *Id.* (projecting new regulations will have positive environmental impact).

86. *See id.* (stating NMPs should explain how CAFO will prevent nitrogen and phosphorus from polluting water sources).

87. EPA, *supra* note 79, at 17 (stating “proposed NMP and permit will be available for public review and comment”).

88. *Id.* (requiring CAFO owner or operator who discharges into a water supply to apply for permit under CWA).

89. *See Campaign Issues, supra* note 14 (providing specific examples and consequences of water contamination).

90. *Id.* (stating EPA’s estimate that livestock’s waste has polluted over 27,000 miles of U.S. waters).

91. Eubanks, *supra* note 9, at 10501 (explaining that accidents like this occur due to poor sanitation and lack of reinforced waste lagoons).

92. *See Clean Water Act (CWA) - Agriculture-Related Enforcement Cases*, EPA, <http://www.epa.gov/agriculture/lcwaenf.html#feedlot> (last visited Nov. 13, 2010) (providing examples of current CWA violations). *See supra* note 93 and accompanying text for another example of a recent violation.

93. *Id.* (stating settlement agreement included \$25,000 fine).

amounts of chemicals into the air.⁹⁴ These chemicals include methane, hydrogen sulfide, nitrogen, and ammonia.⁹⁵ Interestingly enough, the CAA does not monitor emissions from farms.⁹⁶

Instead, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Emergency, Planning and Community Right-to-Know Act (EPCRA) regulate emissions.⁹⁷ Both acts require CAFOs to report emissions of any hazardous substance over a certain quantity.⁹⁸ For example, these statutes “require factory farms to report their emissions of ammonia and hydrogen sulfide when they emit more than 100 pounds per day.”⁹⁹ When a CAFO emits air pollutants above the reportable quantity, it must, at a minimum, file an initial report and a one-year follow up report in order to remain in compliance with the statutes.¹⁰⁰ The reporting requirements under these statutes serve a valuable role in policing pollutant emissions and promoting transparency.¹⁰¹

In 2002, factory farms, aware of CERCLA and EPCRA as tools to regulate CAFO air pollutant emissions, decided to approach the EPA with a proposal for a safe harbor agreement protecting them

94. Hessler & Balaban, *supra* note 11, at 60 (listing barns, manure lagoons, and other waste sites as sources of chemicals). The release of these chemicals causes several health issues, such as eye irritation, respiratory problems, headaches, and others. Heinzen, *supra* note 76, at 1494-95.

95. Hessler & Balaban, *supra* note 11, at 60 (noting such chemicals lead to air and water pollution and illness). The EPA has estimated that livestock waste contributes eighty percent of total U.S. ammonia emissions. Heinzen, *supra* note 76, at 1494.

96. Lewis, *supra* note 75, at 1565 (stating that CAA was enacted to reduce air pollution and CAFOs can emit nitrous oxides, hydrogen sulfide, and volatile organic compounds). Odors emitted from CAFOs smell like rotten eggs, rancid butter, and nauseating fecal matter. *Raising a Stink*, *supra* note 12, at 5 (listing various chemicals emitted from factory farms and smells associated with them).

97. See Heinzen, *supra* note 76, at 1499 (noting CERCLA and EPCRA are avenues for suits against CAFOs). Recently, there have been citizen lawsuits seeking to require CAA operating permits to apply to CAFOs. *Id.* at 1497. One notable case is *Idaho Conservation League v. Boer*, 362 F. Supp. 2d 1211 (D. Idaho 2004), where the “United States District Court for the District of Idaho held that the Idaho Department of Environmental Quality may regulate dust, animal dander, and other small particulate pollution as a CAA criteria pollutant.” *Id.*

98. See *id.* at 1502-03 (explaining that both statutes exempt air releases due to land application of manure as fertilizer from reporting requirements).

99. Hessler & Balaban, *supra* note 11, at 60 (stating industry response has been strong, but it is unclear whether EPA will stand by, weaken, or eliminate these statutes).

100. Heinzen, *supra* note 76, at 1504 (explaining industry-wide nature of reporting requirements provides “opportunity . . . to gain knowledge about emissions from thousands of facilities with potential health impacts”).

101. *Id.* at 1501-02 (advocating transparency by making reports available to public).

from any liability for air emissions.¹⁰² In response, the EPA negotiated an administrative consent agreement (ACO) with the factory farm industry.¹⁰³ Under the ACO, any animal feeding operation could sign on to the agreement if the operation agreed to help finance and partake in an emissions monitoring study, as well as pay a small penalty.¹⁰⁴ In return, the participating operations received immunity against ongoing civil actions for violations of the CAA, CERCLA, and EPCRA.¹⁰⁵ Currently, more than 2,600 farm operators have signed the agreement and approximately 14,000 CAFOs have legal immunity.¹⁰⁶

How is this waste transformed into toxic chemicals? The answer takes us back to the Farm Bill. Large farming operations were formerly impossible because a prohibitive amount of land was needed for livestock to graze, but CAFOs are able to exist by feeding animals corn instead of grass.¹⁰⁷ Without a need for grass, farmers no longer need a great amount of open land and can instead concentrate their animals into a smaller area.¹⁰⁸ CAFOs, therefore, developed along with the creation of commodity crop agribusinesses.¹⁰⁹ Currently, “66% of the current corn crop in the United States, which is grown with water-polluting fertilizers and pesticides, is fed to livestock in CAFOs solely for the production of meat.”¹¹⁰ Because a large amount of chemicals is used to produce the corn

102. *See id.* at 1507 (describing CAFOs' response to growing awareness environmental regulations). The industry proposed that the EPA provide CAFOs with immunity from CAA and CERCLA actions for air emissions in exchange for participation in an air emissions monitoring program. *Id.*

103. Michele M. Merkel, *EPA and State Failures to Regulate CAFOs Under Federal Environmental Laws*, at 3, (Sept. 11, 2006), available at http://www.environmentalintegrity.org/pdf/publications/EPA_State_Failures_Regulate_CAFO.pdf (explaining ACO gave participating facilities immunity from past and future air emission violations).

104. Heinzen, *supra* note 76, at 1506-07 (hoping study would create workable method to measure pollutant emissions from different sources).

105. *Id.* at 1507 (revealing study only included twenty-five total sites on twenty-one farms across ten states).

106. *Id.* (explaining how CAFOs escape greater liability and fault by paying minimal fee).

107. *See* Eubanks, *supra* note 9, at 10500 (describing how large operations became feasible).

108. *Id.* at 10500-01 (explaining that CAFOs only need corn, which is readily available because of subsidies, to feed animals).

109. *Id.* at 10500 (noting insufficient amount of grass available for large operations).

110. *Id.* (explaining that changes in industrial agricultural system resulted from invention of hybridized grains).

fed to the animals, farmers refuse to recycle CAFO manure onto their crops, leaving it to pollute both the water and air.¹¹¹

The Farm Bill's subsidy program encourages the overproduction of corn.¹¹² These subsidy payments push crop prices down, making the cost to grow the crops higher than the cost to purchase them.¹¹³ Further, these subsidy payments end up being paid indirectly to factory farms, which do not pay full price for their animal feed, and thus provide an incentive for factory farms to continue using CAFOs.¹¹⁴

B. Soil Erosion

Soil erosion is another major externality associated with industrialized agricultural production.¹¹⁵ Currently, "[o]ver 4.8 billion tons of topsoil are blown or washed away every year," and the United States is "losing one inch of topsoil on its agriculture lands every nineteen years."¹¹⁶ The rise of the single-crop monoculture has increased soil erosion.¹¹⁷ The Farm Bill encourages the maximum production of commodity crops, causing many farmers to grow subsidized crops without rotating in a mix of non-commodity crops and perennials to return nutrients to the soil and prevent erosion.¹¹⁸ Additionally, "the constant survival mode created by the Farm [B]ill forces farmers to cultivate their fields without opting for

111. Windham, *supra* note 2, at 21 (stating manure also contains heavy metals and hormone residue, which easily contaminate nearby water sources).

112. *See Farm Bill 101, supra* note 23 (identifying corn as major commodity crop). Corn farmers have also received the greatest amount of subsidy support, about forty-six percent of the total commodity subsidies from 2002-2005. Windham, *supra* note 2, at 14.

113. *Farm Bill 101, supra* note 23 (explaining payments make up difference between low price paid by agribusiness and farmers' cost of producing crop).

114. *Id.* (concluding subsidy payments allow thousands of animals to be fed easily). Subsidy payments have resulted in the price of commodity crops decreasing about thirty-six percent. *The Farm Bill, supra* note 1, at 2.

115. Windham, *supra* note 2, at 21 (explaining that normal methods of industrial agriculture amplify topsoil loss).

116. *Id.* (reporting estimate that over one-third of agricultural topsoil in the U.S. has been lost in past forty years).

117. Eubanks, *supra* note 9, at 10501 (describing erosion results from monoculture, which is related to disappearance of perennial agriculture).

118. *Id.* (relating disappearance of perennial agriculture); *see also* Windham, *supra* note 2, at 21 (stating these farming methods are result of industrial agriculture, which encourages overproduction and allows soil to remain without cover crop).

fallow seasons to rest the fields.”¹¹⁹ This farming method will eventually leave once profitable farmland completely worthless.¹²⁰

In addition to the loss of topsoil, soil erosion causes the release of carbon dioxide (CO₂).¹²¹ The release of CO₂ occurs because it is absorbed and stored in the soil.¹²² When the soil is tilled, organic material in the soil absorbs oxygen from the air, decomposes, and releases CO₂ into the atmosphere.¹²³ Erosion continues this process by carrying away the decomposing topsoil and exposing a new layer of topsoil to the decomposition process.¹²⁴ Currently, the levels of CO₂ in the atmosphere are historically high with dangerous environmental consequences.¹²⁵

C. Pesticides and Fertilizers

Besides water pollution from animal waste, half of the pollution in our nation’s waters comes from pesticides, fertilizers, and other agricultural chemicals used by agribusinesses to maximize crop yields.¹²⁶ Runoff from agricultural chemicals is estimated to cause approximately \$9 billion dollars worth of damage to surface waters in the United States every year.¹²⁷ The greatest example of the destruction agricultural pollution can cause is the “dead zone” that extends from the mouth of the Mississippi River to the Gulf of

119. Eubanks, *supra* note 9, at 10501-02 (identifying benefits to soil and environment lost under single crop monoculture). These farming practices have led to over 4.8 billion tons of topsoil being blown or washed away each year. Windham, *supra* note 2, at 21.

120. Eubanks, *supra* note 9, at 10502 (explaining consequences when fields are not allowed to rest). “The loss of topsoil costs American farmers and the economy over \$44 billion a year.” Windham, *supra* note 2, at 21.

121. Eubanks, *supra* note 9, at 10501 (noting accelerated erosion reduces ecosystem carbon pool, accentuates carbon emissions, and must be controlled effectively).

122. *Id.* at 10502 (explaining why better soil management practices are needed to sequester carbon). Each year, soil releases five percent of its carbon into the atmosphere as carbon dioxide. *Soils*, CYBER EARTH SCIENCE, <http://earth-sci.org/education/teacher/basicgeol/soil/soil.html#CarbonintheSoi> (last visited Nov. 13, 2010).

123. Eubanks, *supra* note 9, at 10502 (emphasizing more carbon dioxide emissions occur when soil is tilled by large machines that rip at soil, pebbles, and other underground materials).

124. *Id.* (explaining that accelerated erosion reduces ecosystem carbon pool and accentuates carbon emissions).

125. *See id.* (giving examples of more sustainable methods used to store carbon in soil, such as no-till farming, cover cropping, crop rotation, and residue mulching).

126. *See* Windham, *supra* note 2, at 19 (describing how these chemicals seep into surrounding ecosystem and groundwater).

127. *Id.* (explaining oil pollution is “estimated to only cause between \$400 million and \$1.5 billion worth of water damage”).

Mexico.¹²⁸ Agricultural chemicals in the Mississippi River formed this dead zone when they flowed into the Gulf, “creating an oxygen-deprived area where deadly algae blooms occur.”¹²⁹ This algae created an 8,000 square mile area of water devoid of sufficient oxygen to support aquatic life.¹³⁰

Agricultural chemical pollution has become a significant problem due to the volume of chemicals used in farming.¹³¹ Since the 1950s, the use of agricultural chemicals has increased steadily.¹³² “Today farmers apply 119 pounds of fertilizer per acre of cropland - that’s 157 pounds of fertilizer for every man, woman, and child in the United States.”¹³³ The problem with the use of agricultural chemicals is that once they are used, a cycle begins that requires the use of more and more chemicals each year.¹³⁴ The use of fertilizers on monoculture crops destroys the soil’s natural fertility process, requiring the farmer to use more and more “fertility in a bag” each year.¹³⁵

128. *See id.* (mentioning other dead zones found in Chesapeake Bay and Coastal Bays).

129. *See id.* (stating oil pollution is estimated to only cause between \$400 million and \$1.5 billion worth of water damage); Joel Achenbach, *A ‘Dead Zone’ in the Gulf of Mexico*, WASH. POST, July 31, 2008, at A02, available at <http://www.washingtonpost.com/wp-dyn/content/story/2008/07/31/ST2008073100349.html> (describing nitrogen as major culprit in creating dead zone).

130. *Campaign for Family Farms and the Environment*, CITIZENS ACTION COALITION OF INDIANA, <http://www.citact.org/newsite/modules.php?op=modload&name=News&file=article&sid=182> (last visited Nov. 13, 2010) [hereinafter *Campaign for Family Farms*] (explaining Mississippi River became polluted by Iowa rivers); *see also* Achenbach, *supra* note 129 (listing shrimp, crabs, and fish among aquatic life).

131. *See* Windham, *supra* note 2, at 19 (explaining that mass production of chemicals began in 1950s). *See infra* notes 132-35 for a discussion of why chemicals are increasingly used in farming process.

132. *See* Windham, *supra* note 2, at 19 (revealing that farmers use seven million tons of fertilizer per year by 1960 and nearly twenty million tons of fertilizer per year by 1989).

133. *Id.* (emphasizing how much more fertilizer is used now than during 1960s). *See infra* notes 143-49 and accompanying text for a discussion of the greatest problem with the use of these chemicals.

134. *See* Windham, *supra* note 2, at 19 (suggesting use of agricultural chemicals creates chemical treadmill farmers cannot get off).

135. *Id.* at 19-20 (explaining cycle of chemical use would not occur under a biological farming system).

The cycle is even worse when pesticides are involved.¹³⁶ Currently, more than 1,600 pesticides are on the market.¹³⁷ Each year, more and more insects and pests become biologically resistant to these pesticides.¹³⁸ The surviving pests reproduce and create a new population of insects immune to the pesticide.¹³⁹ Consequently, farmers must use even more of these chemicals to protect their crops.¹⁴⁰ Each year, farmers lose more than thirty-seven percent of their crops to pests because the pests are becoming more resistant to pesticides.¹⁴¹ Additionally, most of the pesticides never reach the crops and, instead, run off into water supplies.¹⁴²

Pollution of water supplies by these agricultural chemicals has resulted in serious health risks; estimates suggest that sixty percent of all herbicides and thirty percent of all insecticides may cause cancer.¹⁴³ Studies have shown a link between “breast cancer, prostate cancer, brain and nervous system disorders, and other immune system disorders to the use of pesticides.”¹⁴⁴ The long-term effects of exposure to these chemicals are currently unknown, but medical experts have acknowledged that infants and young children are the most at risk because of their body weight and metabolic characteristics.¹⁴⁵

136. *See id.* (stating pesticides create even greater vicious cycle than chemical use). *See infra* notes 137-42 and accompanying text for a discussion of why the cycle worsens with the use of pesticides.

137. Eubanks, *supra* note 9, at 10500 (explaining that many pesticides developed as nerve gas during World War II are toxic to insects, plants, birds, and wildlife).

138. *See* Windham, *supra* note 2, at 20 (acknowledging that pesticides cannot eliminate all pests).

139. *See id.* (describing how insects’ development of biological resistance to pesticides leads to creation and use of more pesticides).

140. *Id.* (relating that “farmers still lose over thirty-seven percent of their crop to pests”).

141. *Id.* (explaining that “over 800 million pounds of pesticides are applied to crops each year at a cost exceeding seven billion dollars”).

142. *See id.* (exposing public to more lethal pesticides).

143. *See* Windham, *supra* note 2, at 20 (stating that U.S. spent more than \$6 billion in 1998 to kill weeds with herbicides).

144. *Id.* at 20-21 (emphasizing numerous studies that have been conducted); *see also* *Pesticides: Health and Safety*, EPA, <http://www.epa.gov/pesticides/health/human.htm#healtheffects> (last visited Nov. 13, 2010) [hereinafter *Pesticides*] (explaining health effects depend on type of pesticides).

145. Windham, *supra* note 2, at 20 (implying this is only known effect from long-term exposure to agricultural chemicals). Before the EPA approves an agricultural chemical, it considers whether the chemical poses an unreasonable risk to humans. *Pesticides*, *supra* note 144.

Another major problem with agricultural chemicals contaminating water supplies is the risk of Baby Blue Syndrome.¹⁴⁶ Baby Blue Syndrome occurs when the nitrate in the water binds to the hemoglobin, “compromising the blood’s ability to carry oxygen to the brain.”¹⁴⁷ This syndrome is not critical in adults or children, but it can be fatal for infants if it takes a long time for the blood cells to return to normal.¹⁴⁸ When spring rains hit cities like Des Moines, Iowa, nitrogen-rich fertilizers used on corn crops are washed into the downstream river and the city is forced to issue “Baby Blue alerts” to warn parents that it is unsafe to give their children tap water.¹⁴⁹

D. Climate Change

When climate change is discussed, many people overlook the farming industry as a culprit.¹⁵⁰ Unfortunately, the way the United States currently grows and processes food is at the heart of the issue.¹⁵¹ The industrialization of agriculture has increased the amount of greenhouse gas emissions to such a magnitude that, when we eat, we are basically facilitating climate change.¹⁵² The United States’ current industrial farming methods are almost entirely fossil fuel-dependent, leading some observers to comment that “Americans are literally ‘eating oil.’”¹⁵³

146. Windham, *supra* note 2, at 20 (describing problems from chemicals being in water supply); see also *Nitrate in Drinking Water*, WA DEPT. OF HEALTH, <http://www.doh.wa.gov/ehp/dw/Programs/nitrate.htm> (last visited Nov. 13, 2010) [hereinafter *Nitrate in Drinking Water*] (explaining that Baby Blue Syndrome can occur at all ages, but is more serious with infants).

147. Windham, *supra* note 2, at 20 (noting one gets Baby Blue Syndrome through tap water); see also *Campaign for Family Farms*, *supra* note 130 (clarifying that Baby Blue Syndrome is also referred to as methemoglobinemia).

148. *Nitrate in Drinking Water*, *supra* note 146 (stating that blood cells in adults and children return to normal faster than blood cells in infants).

149. Windham, *supra* note 2, at 20 (demonstrating people contract syndrome through contamination of drinking water supplies). In Iowa, the Center for Disease Control has discovered nitrate levels well above the federal drinking water standard in several private wells, which increases the risk of people experiencing significant health risks. *Campaign for Family Farms*, *supra* note 130.

150. See Eubanks, *supra* note 9, at 10504 (commenting that few federal policymakers have noticed link between new agricultural trends and climate change).

151. Michael Pollan, *Farmer in Chief*, N.Y. TIMES, Oct. 9, 2008, at MM62, available at http://www.nytimes.com/2008/10/12/magazine/12policy-t.html?_r=1&pagewanted=1 (emphasizing President Obama’s need to focus on food policy to achieve his campaign goals).

152. *Id.* (explaining this situation occurs because supermarkets are stocked with inexpensive food produced by industrialized agriculture companies).

153. Eubanks, *supra* note 9, at 10504 (explaining hybridized crops are dependent on fossil fuel use).

Food production uses approximately nineteen percent of our total fossil fuels, second only to cars.¹⁵⁴ Nitrogen fertilizers are the back-bone of high-yield industrial agriculture, but they are synthesized from natural gas and consume approximately thirty percent of the energy used in industrial agriculture.¹⁵⁵ Gasoline or diesel-powered tractors are used to till the soil and plant the seeds.¹⁵⁶ “Electricity is used constantly to power irrigation pumps and laser-guided farm equipment.”¹⁵⁷ Trucks also use a significant amount of diesel fuel in transporting food to its final destinations.¹⁵⁸ Thus, the industrialization of agriculture has made our food supply entirely dependent on fossil fuels, destroying the once indigenous farming methods used on family farms.¹⁵⁹

The subsidies in the Farm Bill promote industrial agriculture because it is believed to be more efficient.¹⁶⁰ If “efficient” refers to the maximization of profits, then industrial agriculture is indeed efficient because it uses agricultural chemicals to produce the maximum number of crops and shifts the external costs of production onto the rest of society.¹⁶¹ If, however, “efficient” refers to the amount of resources that are used to produce the product, then industrial agriculture would qualify as tremendously inefficient.¹⁶² Either way, the current method of agriculture production is not sus-

154. Pollan, *supra* note 151 (reporting that agricultural system contributes approximately thirty-seven percent of current greenhouse gas emissions).

155. Eubanks, *supra* note 9, at 10504 (explaining why Americans are figuratively eating oil).

156. *Id.* (stating that gasoline- or diesel-powered combines collect crops during harvest).

157. *Id.* (discussing high volumes of electricity used to turn crops into television dinners and snacks).

158. *Id.* (illustrating corporate farmers’ dependence on fossil fuels to distribute processed foods); see also Pollan, *supra* note 151 (describing modern food processing, packing, and transportation as forming a system that takes ten calories of fossil fuel energy to produce one calorie of modern food).

159. Wendell Berry & Wes Jackson, *A 50-Year Farm Bill*, N.Y. TIMES, Jan. 4, 2009, at A-21, available at <http://nytimes.com/2009/01/05/opinion/05berry.html> (stating this current method of agriculture is not sustainable).

160. See Windham, *supra* note 2, at 22 (discussing how highly mechanized chemical farming costs approximately \$47 per acre while low-input farming costs only \$31 per acre).

161. See *id.* at 21-22 (noting industrial model requires fossil fuels). The current farm subsidies will cost taxpayers \$288 billion over the next five years. David M. Herszenhorn, *A Bid to Overhaul a Farm Bill Yields Subtle Changes*, N.Y. TIMES, Oct. 24, 2007, at A-13, available at <http://www.nytimes.com/2007/10/24/washington/24farm.html>.

162. See Windham, *supra* note 2, at 22 (explaining how most efficient solution changes when externalities are taken into account).

tainable, and the Farm Bill needs to begin encouraging different methods of food production.¹⁶³

IV. HOW THE LAW HAS RESPONDED TO THIS CRISIS

In 2008, Congress passed a new Farm Bill entitled the Food, Conservation, and Energy Act (2008 Farm Bill).¹⁶⁴ This 2008 Farm Bill consisted of approximately \$307 billion in spending for various programs.¹⁶⁵ Of that amount, roughly \$35 billion dollars went to the subsidy program for commodity crops, such as corn, wheat, cotton, soybeans, and others.¹⁶⁶ These subsidy payments continue governmental support for agribusinesses and drawbacks for family farms.¹⁶⁷ Unfortunately, this new Farm Bill does not allow every farmer who grows commodity crops to be eligible for subsidy payments.¹⁶⁸ The subsidies are paid per acre, meaning that the largest farms, generally corporate entities, receive the largest checks.¹⁶⁹ Farms with ten acres or less (usually family farms) are not eligible for payments.¹⁷⁰

163. Berry & Jackson, *supra* note 159 (explaining that food supply will eventually decline and problem will grow). The current climate costs of industrial agriculture, which accounts for fifteen percent of worldwide greenhouse gases, signify that change needs to occur. Eubanks, *supra* note 9, at 10504 (reporting that agriculture accounts for approximately twenty-five percent of carbon dioxide emissions and two-thirds of methane emissions).

164. *Grassroots Guide to the 2008 Farm Bill*, SUSTAINABLE AGRICULTURE COALITION, 3 (Oct. 2008), <http://sustainableagriculturecoalition.org/wp-content/uploads/2008/11/sac-farm-bill-guide.pdf> (explaining New that Farm Bill is omnibus package of federal farm and food legislation). The bill received enough bipartisan support that Congress was able to override President George W. Bush's veto. David M. Herszenhorn, *Reaching Well Beyond the Farm Bill*, N.Y. TIMES, May 20, 2008, A-16, available at <http://www.nytimes.com/2008/05/20/washington/20farm.html>.

165. Herszenhorn, *supra* note 164 (explaining bipartisan support given for 2008 Farm Bill). The 2008 bill included support for many areas important to lawmakers. *Id.* For example, Senator Mitch McConnell of Kentucky inserted a tax break for racehorse owners into the bill. *Id.*

166. *Id.* (providing details on amount of money allocated for farm subsidies). By comparison, \$209 billion is given to programs to feed the poor. *Id.*

167. See *2008 Farm Bill Wrapup*, FOOD & WATER WATCH, 1 (June 2008), <http://documents.foodandwaterwatch.org/farmBillWrapupW.pdf> [hereinafter *2008 Farm Bill Wrapup*] (explaining 2008 Farm Bill provides corporate welfare for big companies that buy inexpensive raw material).

168. See *infra* notes 171-74 and accompanying text for a discussion of why certain farms are ineligible for subsidy payments.

169. Brian M. Riedl, *Don't Be Fooled: House Farm Bill Weakens Payment Limits*, HERITAGE FOUNDATION, (July 24, 2007) <http://www.heritage.org/Research/Reports/2007/07/Dont-Be-Fooled-House-Farm-Bill-Weakens-Payment-Limits> (discussing commercial farmers' ability to receive majority of subsidies).

170. *Direct and Counter-cyclical Payment (DCP) Program Fact Sheet*, USDA, (Dec. 19, 2008), http://www.apfo.usda.gov/Internet/FSA_File/dcp2008.pdf (explaining details of subsidy payment program).

The 2008 Farm Bill also limits eligibility for subsidies to farmers with adjusted gross incomes of less than \$750,000, or \$1.5 million for married couples.¹⁷¹ This limitation means that a farming couple could feasibly take in \$2.5 million a year and still receive federal assistance.¹⁷² This income cap is, therefore, still too favorable towards big farmers.¹⁷³ Subsidizing wealthy farmers leads to increases in rent and land prices for all other farmers, hurting the smaller farmers the most.¹⁷⁴

Despite its negative aspects, the 2008 Farm Bill does make some improvements.¹⁷⁵ First, the Bill provides \$1.1 million in increased funding to enroll more than 100 million acres into a federal conservation program that prevents fragile farms from being destroyed.¹⁷⁶ Payments made under the Environmental Quality Incentives Program are now capped at \$300,000 per farm, an improvement from the previous limit “that had allowed large factory farms to get much of their funding for projects to handle their excessive amounts of manure.”¹⁷⁷ The 2008 Farm Bill also provides various advantages for the organic farming community, including

171. Gail Russell Chaddock, *Farm Bill Highlights Rich-Poor Debate*, CHRISTIAN SCI. MONITOR, May 19, 2008, available at <http://www.csmonitor.com/USA/Politics/2008/0519/farm-bill-highlights-rich-poor-debate> (identifying that 2008 Farm Bill continues to provide subsidies to wealthy individuals). The current eligibility threshold is lower than the \$2.5 million income cap for couples under the previous Farm Bill, but not as low as President Bush had hoped, which was \$200,000. *Id.*

172. Mike Lillis, *Big Ag Holds Big Sway in Farm Bill*, THE WASH. INDEPEND., May 16, 2008, <http://washingtonindependent.com/1335/big-ag-holds-big-sway-in-farm-bill> (explaining that opponents of 2008 Farm Bill believed it made no substantive reform). High income agricultural investors will be able to divide income between spouses, so at least one is below the limit. *Overview of the 2008 Farm Bill*, CTR. FOR RURAL AFFAIRS, <http://www.cfra.org/newsletter/2008/05/overview-2008-farm-bill> (last visited Nov. 13, 2010) [hereinafter *Overview of the 2008 Farm Bill*].

173. Lillis, *supra* note 172 (reporting that agribusinesses donated \$31 million to lawmakers in 2008). Critics of the bill believed the donations were an attempt to avoid any serious reform. *Id.*

174. *Id.* (explaining that opponents see 2008 Farm Bill as jeopardizing livelihoods of small farmers); see also *Overview of the 2008 Farm Bill*, *supra* note 172 (describing how subsidies will cause landlords to switch to cash rent arrangements and capture payment indirectly through high dollar cash rents).

175. See David Imhoff, *We'll Reap What We Sow*, L.A. TIMES, Apr. 10, 2008, available at <http://articles.latimes.com/2008/apr/10/opinion/oe-imhoff10?pg=2> (explaining that bill created some helpful new programs).

176. *2008 Farm Bill Wrapup*, *supra* note 167 (explaining increased funding and conservation provisions in 2008 Farm Bill). This conservation “program pays producers according to how well they manage the land to enhance the environment.” *Overview of the 2008 Farm Bill*, *supra* note 172.

177. *2008 Farm Bill Wrapup*, *supra* note 167 (noting best effort in Farm Bill to conserve land); see also *Overview of the 2008 Farm Bill*, *supra* note 172 (describing Environmental Quality Incentives Program as conservation cost-share program helping farmers and ranchers establish conservation methods on their land).

“new funding for research and data collection on organic production, prioritizing research on plant and animal breeds suited for local environments and organic production, funding to help beginning organic farmers with the cost of organic certification, and ways for organic farmers to enter into government conservation programs.”¹⁷⁸

V. WHAT IS THE SOLUTION?

Our nation’s current agricultural policies placate agribusiness and the food processing industries, leaving the family farm in the dust and ravaging many aspects of our natural environment.¹⁷⁹ How can agricultural policy be changed to save family farms from extinction and, therefore, save various facets of our environment? Fortunately, there are diverse solutions to revise the system and remedy past wrongs.¹⁸⁰

The most obvious solution is the elimination of subsidies altogether.¹⁸¹ A subsidy-free market would be ideal, but is difficult to achieve.¹⁸² “[T]he 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.”¹⁸³ If the government eliminated subsidies, the “net farm income would decrease about twenty-five to thirty percent, a total of about \$15 billion.”¹⁸⁴ Any solution, therefore, must include some subsidies or loans.

178. 2008 Farm Bill Wrapup, *supra* note 167 (implying that more needs to be done despite some improvements). Certified organic food products “prohibit the use of most synthetic materials to control pests and weeds, genetic engineering, sewage sludge, irradiation, and a national list of non-synthetic substances.” Windham, *supra* note 2, at 26.

179. Eubanks, *supra* note 9, at 10505-06 (explaining that sterile soil and farming organized at unworkable scale will result if current methods continue).

180. *Id.* at 10506 (explaining solutions can mitigate and potentially solve major problems with commodity crop agriculture). See *infra* notes 181-220 and accompanying text for a discussion of alternative programs.

181. *The Farm Bill*, *supra* note 1, at 8 (disagreeing with popular theory that if U.S. subsidies were eliminated, farmers in U.S. and developing world would be able to make better living).

182. See Eubanks, *supra* note 9, at 10506 (stating that farmers rely on subsidy payments).

183. *Id.* (providing example of New Zealand to show it is possible to survive without subsidy program).

184. *The Farm Bill*, *supra* note 1, at 8-9 (acknowledging that subsidy elimination would cause greater harm to already struggling rural economies).

Another possible solution, then, is to subsidize sustainable agriculture.¹⁸⁵ Instead of eliminating the Farm Bill subsidies, Congress could shift a fair portion of those payments to farmers who are implementing sustainable agricultural methods.¹⁸⁶ This policy would offer subsidies to all farmers based on their farming practices rather than the crops they cultivate, allowing smaller farmers to receive these payments.¹⁸⁷

Sustainable farming methods “encompass[] a variety of philosophies and farm techniques that are low chemical, resource and energy conserving, and resource efficient.”¹⁸⁸ The use of sustainable agriculture, therefore, has the ability to solve many of the problems previously discussed.¹⁸⁹ For instance, if the government gave a large portion of the commodity crop subsidies to farmers using sustainable agricultural methods, it would greatly impact the market by decreasing supermarket prices for sustainably-farmed food and increasing prices for foods based on industrially-farmed corn and soybeans.¹⁹⁰ This would make the former more affordable to consumers and the latter less affordable.¹⁹¹

185. See Eubanks, *supra* note 9, at 10506 (stating that subsidizing sustainable agriculture could improve current agricultural policies). Sustainable agriculture is not the same as organic agriculture. *Id.* at 10507. These types of agriculture are similar, but the main difference is that “sustainable agriculture practices always have the goal of preserving the environment because sustainability is the foundation.” *Id.* (emphasis omitted). What constitutes organic produce is constructed by a certifying agency, and “the standards imposed by these entities are always subject to change and may not reflect sound agricultural, environmental, or health based [sic] decision making [sic] because of the influence of agribusiness or other interested parties.” *Id.*

186. *Id.* at 10506 (identifying need for definition of sustainable agriculture before change can occur). Examples of sustainable agricultural methods include “no-till farming, cover cropping, crop rotation, residue mulching, elimination of most or all agrochemical fertilizers, significant water use reduction . . . non-use of pesticides and herbicides that break down slowly in the environment.” *Id.* at 10507.

187. Eubanks, *supra* note 9, at 10506 (advocating elimination of Farm Bill conservation programs targeting only large commodity crop growers).

188. *Id.* (quoting JAMES E. HORNE & MAURA McDERMOTT, *THE NEXT GREEN REVOLUTION: ESSENTIAL STEPS TO A HEALTHY, SUSTAINABLE AGRICULTURE* 55 (The Haworth Press, Inc., 2001) (providing additional examples of sustainable agricultural methods).

189. See Eubanks, *supra* note 9, at 10506 (discussing potential benefits of sustainable agriculture). Why has the Farm Bill been unable to solve any of these problems so far? The reason is “likely due to pleas from certain campaign contributors that are the largest beneficiaries of Farm Bill subsidies: agribusiness and food processors.” *Id.*

190. Eubanks, *supra* note 9, at 10507 (explaining how giving subsidies to farmers who use sustainable farming methods would make product prices more closely reflect market prices).

191. See *id.* (describing impact on public consumption of food derived from different sources).

Farmers will farm where the money is, and, if Congress provides subsidies for sustainable agriculture, farmers will undertake that method to survive.¹⁹² The use of sustainable agriculture will “help repair local ecosystems, boost farmers’ yields as the ecosystem improves, and mitigate the degradation caused by decades of mechanized agriculture under the Farm Bill.”¹⁹³ Sustainable agriculture will also help revitalize rural communities by uniting small local producers and local consumers against industrial corporations.¹⁹⁴

Another possible solution to family farm extinction is based on the model proposed by the National Family Farm Coalition, an organization consisting of family farmers and rural groups, entitled the “Food from Family Farms Act” (FFFA).¹⁹⁵ The FFFA’s goals are to ensure fair prices for family farmers, safe and healthy food, and vibrant, environmentally sound rural communities.¹⁹⁶ This plan would achieve these goals by establishing programs that eliminate subsidies.¹⁹⁷ Instead of giving farmers subsidies, the FFFA would ensure that farmers will receive a fair price for the sale of commodity crops through a cost-of-production price support system.¹⁹⁸

The price support system is a loan program that provides non-recourse loans for commodity crops.¹⁹⁹ If the prices of the commodity crops fall to a certain level, these loans allow farmers to forfeit a portion of their crop to the government as payment for the

192. *Id.* (indicating farmers want to grow healthier foods, maintain their communities, and conserve their environment, but have been pressured to farm commodity crops for profit).

193. *Id.* at 10509 (revealing that use of sustainable agriculture will slow climate change because sustainable farming uses thirty to seventy percent less energy per unit of land than conventional agricultural systems).

194. *Id.* (quoting MICHAEL POLLAN, *THE OMNIVORE’S DILEMMA: A NATURAL HISTORY OF FOUR MEALS* 254 (The Penguin Press 2006)) (illustrating benefits sustainable agriculture subsidies provide to local producers through higher supermarket sales).

195. *Farm Bill 101*, *supra* note 23 (explaining National Family Farm Coalition’s plan to return to supply management and price stabilization).

196. *Food From Family Farms Act*, NATIONAL FAMILY FARM COALITION, 2, <http://www.nffc.net/Learn/Fact%20Sheets/FFFA2007.pdf> (last visited Nov. 13, 2010) [hereinafter *Food From Family Farms Act*] (describing family farm system as “most effective means to provide safe and quality food, diversity of production, equitable social and economic opportunity, and preservation of land, water, and bio-diversity”). *Id.*

197. *See id.* (detailing would farm income would be dependent on sale of farm commodities at fair price).

198. *Id.* (explaining that FFFA fixes problems with current system by providing programs that secure food and energy security).

199. *Id.* at 8 (explaining “amount of commodities eligible for nonrecourse loans will be based on a loan cap of \$450,000 for all production under loan per crop year”).

loan.²⁰⁰ This type of loan establishes a limit on how low prices can go because, once prices fall to a level below the loan rate, farmers are able to put their crops into a government reserve, reducing market supply and stabilizing prices.²⁰¹

Under the FFFA, the reserve where these crops would first go to is referred to as the Strategic Reserve.²⁰² This reserve is stocked to a level of seven and a half percent of the average annual use of commodity crops.²⁰³ When that reserve is full, the extra crops fill a Food Security Reserve (FSR).²⁰⁴ The crops in the FSR do not go on the market until it is determined that the national average price exceeds 150 percent of the loan for thirty consecutive days.²⁰⁵ This process prevents overproduction and the resulting economic hardships.²⁰⁶

In order for farmers to receive price support loans, they would be required to abide by the Conservation Compliance Program.²⁰⁷ This program's objective is to avoid wasteful overproduction of crops and balance production with demand.²⁰⁸ After the Secretary of Agriculture determines which crops are overproduced, participating farmers would be ordered to stop growing a certain percentage of their over-produced crops and enter those idled acres into a soil conservation program.²⁰⁹

200. *Farm Bill 101*, *supra* note 23 (providing for return to supply management); *see also Food From Family Farms Act*, *supra* note 196, at 5 (explaining loan rates reflect cost of production for each individual crop).

201. *The Farm Bill*, *supra* note 1 (emphasizing program's ability to stabilize prices and help farmers); *see also Food From Family Farms Act*, *supra* note 196, at 5 (suggesting farmers can rotate crops put into reserve to maintain quality).

202. *Food From Family Farms Act*, *supra* note 196 (describing how reserve can be split for emergency humanitarian relief and supporting renewable fuels industry).

203. *Id.* (explaining that Secretary of Agriculture may be allowed to buy stocks from market when unusual circumstances occur and reserve is not full).

204. *Id.* (discussing how FSR is set at minimum of ten percent of annual usage).

205. *Id.* (advocating rotation crops in reserve to maintain quality). "When the supplies in the FSR reach the 10% of annual use, the secretary will announce the opening of a Farmer Owned Reserve (FOR) that allows farmers to extend the original nonrecourse loan past 9 months, stop accrual of interest, and receive storage payments . . ." *Id.*

206. *See id.* at 6 (explaining how reserves are used to enhance food, energy, and national security).

207. *See Food From Family Farms Act*, *supra* note 196 (stating that farmers must participate in program to receive other benefits under FFFA).

208. *Id.* (providing short-term conservation set-aside program). *See infra* note 213 and accompanying text for a discussion of how this program prevents crop overproduction.

209. *Food From Family Farms Act*, *supra* note 196 (stating once they meet requirement, farm operators will have flexibility to determine crop mix to plant within acreage base).

The FFFA would also recognize the importance of sustainable agriculture methods by creating the Conservation Security Program.²¹⁰ This program would encourage the government to offer incentives to those farmers who are conserving and diversifying their crops.²¹¹ Farms that grow a variety of crops are usually more economically and ecologically resilient.²¹² Because these farms do not rely on just one crop, economic risks are spread and the farms are less susceptible to price fluctuations associated with supply and demand.²¹³ These farms also use methods that hold soil and nutrients in place, conserve soil moisture, and suppress weeds, pathogens and insect pests without the use of chemicals.²¹⁴

Another potential solution for the family farm is to follow President George W. Bush's proposal under the Farm Bill.²¹⁵ This proposal suggested that the current price-based subsidies be converted to revenue-based payments.²¹⁶ For this conversion to benefit family farms, the payments would have to be based on a farm's entire revenue.²¹⁷ If the payments applied only to commodity crop revenues, the current policy's problems would only continue because industrial farmers would receive an inequitable share of the farm subsidies, thus creating an artificial price disparity between industrial food products and sustainably grown food.²¹⁸

The Bush administration's proposal included a \$7.8 billion increase in conservation funding and a reduction in the adjusted gross income cap for farmer eligibility from \$2.5 million to \$200,000, giving smaller farms the ability to take advantage of the

210. *Id.* (treating sustainable agriculture as bedrock principle of any agricultural reform).

211. *Id.* (describing program's ability to exemplify benefits of diversified production).

212. Gail Feenstra et al., *What is Sustainable Agriculture?*, UNIV. OF CAL., <http://www.sarep.ucdavis.edu/Concept.htm> (last visited Nov. 13, 2010) (giving example of crop diversification as sustainable agriculture practice).

213. *Id.* (describing how loss of single crop at monoculture farms could put them out of business and/or seriously disrupt stability of community dependent on crop).

214. *Id.* (explaining biological buffer provided to farms by diversifying crops).

215. Windham, *supra* note 2, at 29 (stating President Bush spoke out against farm subsidies). See *infra* notes 220-24 and accompanying text for a discussion of President Bush's proposal regarding the 2008 Farm Bill.

216. Windham, *supra* note 2, at 29 (explaining how small family farms are undercompensated because "current price-based subsidy payments substantially favor high-yield, large farming operations").

217. *Id.* (promoting more equitable allocation of farm subsidy payments among large and small farming operations).

218. *Id.* at 30 (explaining commodity crops constitute majority of industrial farmers' production).

payments.²¹⁹ President Bush's proposal also included funding for beginning farmers and farmers classified as socially disadvantaged, such as women and minority farmers.²²⁰ This plan represents a step forward in placing family farms and industrial farms on equal footing and, thereby, a jump towards necessary conservation.

Any of the above plans could work, but it is up to Congress to implement change. We can no longer continue down this current road of Farm Bill subsidies for corn and other commodity crops, immense environmental destruction, and an ever-worsening public health crisis.²²¹ It is time to take the road less traveled and create a system "built on sustainable agriculture, environmental stewardship, improved health and quality of life, and protection of farm communities."²²² Taking this road could make all the difference.²²³

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219. *Id.* (stating proposal also included \$4.2 million increase in funding to Environmental Quality Incentives Program (EQIP) and ideas to redesign EQIP to address broader environmental concerns).

220. *Id.* at 30 (describing plan's increased funding for fruits and vegetables for schools). One provision in the 2008 Farm Bill that encourages beginning farmers is the Beginning Farmer and Rancher Development Program, which provides \$15 million in competitive grants for education, extension, and outreach initiatives to help farmers get started. *Overview of the 2008 Farm Bill*, *supra* note 172.

221. Eubanks, *supra* note 9, at 10509 (urging public to stop supporting non-sustainable farming methods). Our food system is causing such a public health crisis because many chronic diseases, such as diabetes, stroke, and heart disease, are linked to the modern American diet. Pollan, *supra* note 151.

222. Eubanks, *supra* note 9, at 10509 (encouraging public to pressure Congress for reform).

223. *Id.* (quoting Robert Frost, *The Road Not Taken*, in *MOUNTAIN INTERVAL* (Henry Holt and Company 1916)).

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