Assessing U.S. Soil Law and Policy for an Uncertain Future

Mark P. Allain, Jr.*

I. INTRODUCTION

American farms contribute just one percent of the national gross domestic product but are substantial contributors to two major environmental problems: (1) nutrient runoff and (2) greenhouse gas emissions.[1]

First, agricultural nutrient pollution plagues American waterways. Excess nitrogen and phosphorus in animal manure and chemical fertilizers is washed from fields into rivers and streams, leading to toxic algal blooms, eutrophication of waterbodies, and hypoxic conditions fatal to fish and other aquatic life.[2] Additionally, a 2011 study by the USDA's

* © 2021 Mark P. Allain, Jr., J.D. Candidate 2021, Tulane University Law School; B.A. 2014, English & Creative Writing, Oberlin College. The author would like to thank Olivia Bowers, Suzie and Ted Bloch, and Kathleen Allain for their unerring support and encouragement, and his faculty advisor Professor Chris Dalbom for his insight and advice.

1. *Ag and Food Sectors and the Economy,* USDA, https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy/#:~:text=Agriculture%2C%20food%2C%20and%20related%20industries,about%201%20percent%20of%20GDP [https://perma.cc/B73Q-CAM7?type=image].

2. *The Sources and Solutions: Agriculture*, EPA, https://www.epa.gov/nutrientpollution/sources-and-solutions-agriculture [https://perma.cc/FQ87-GF6Z?type=image].

Economic Research Service concluded that it costs $1.7 billion a year to treat drinking water contaminated by nitrates from farm fields.[3]

Second, the agricultural sector is responsible for significant greenhouse gas emissions. According to the NOAA 2019 Global Climate Survey, the combined land and ocean temperature has increased at an average rate of .07 degrees Celsius per decade since 1880, and the average rate of increase since 1981 (18 degrees Celsius) is more than twice that.[4] Looking closely at U.S. agriculture (U.S. Ag) in 2016, soil management accounted for roughly half of the agricultural sector's greenhouse gas budget and 8.6% of all U.S. emissions.[5] Additionally, U.S. Ag emissions in nitrous oxides, methane, and carbon dioxide increased by 13% between 1990 and 2016.[6]

By embracing policies that promote improved soil health and carbon capture, "the two pillars of regenerative agriculture and carbon farming," American farmers could mitigate the most damaging effects of climate change and stem nutrient pollution while helping themselves in the process.[7] Better soil health increases farm resiliency to weather events like floods and droughts, protects yields, and reduces erosion, thereby lessening nutrient runoff.[8] Most importantly, adopting policies in favor of soil building would boost soil carbon sequestration, the process by which atmospheric carbon dioxide is absorbed by trees, grasses, and other plants and housed as carbon in biomass and soils.

The story begins with soil organic matter (SOM).[9] SOM improves soil quality through increased retention of water and nutrients, which in

---

3. MARC RIBAUDO ET. AL., USDA, ERR-127, NITROGEN IN AGRICULTURAL SYSTEMS: IMPLICATIONS FOR CONSERVATION POLICY 65 (Sept. 2011).

4. Rebecca Lindsey & LuAnn Dahlman, *Climate Change: Global Temperature,* NOAA CLIMATE (Jan. 16, 2020), https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature [https://perma.cc/L7YJ-TXM8?type=image].

5. Daniel Cusick, *For Climate-Smart Farmers, Carbon Solution is in the Soil*, GREENWIRE (July 1, 2019), https://www.eenews.net/greenwire/stories/1060681577.

6. *Id.*

7. *Id.*; *see also* Marc Heller, *Perdue Outlines Green Goals for Farmers,* GREENWIRE (Feb. 20, 2020), https://www.eenews.net/greenwire/stories/1062402927/ ("In an address at USDA's annual outlook conference, Perdue said the department would encourage more practices that limit carbon emissions, a goal that would also improve soil health and boost farm productivity as the world's population continues to grow.").

8. Stewart B. Wuest, John D. Williams, Hero T. Gollany, Mark C. Siemens & Dan S. Long, *Comparison of Runoff and Soil Erosion from No-Till and Inversion Tillage Production Systems,* 64 J. SOIL & WATER CONSERVATION 43, 43-52 (Jan. 2009).

9. Todd A. Ontl, *Soil Carbon Storage*, NATURE.COM (2012), https://www.nature.com/scitable/knowledge/library/soil-carbon-storage-84223790/ [https://perma.cc/F49V-WADR?type=image].

turn increases the productivity of plants.[10] In the agricultural setting, this increase in productivity amounts to higher and more consistent crop yields.[11] SOM also improves soil structure, reducing erosion, and contributing to improved water quality, decreased negative impacts to ecosystems, and increased food security.[12] SOM consists of soil microbes, bacteria and fungi, plant and animal tissues, and fecal material.[13] Importantly, SOM is highly enriched in carbon. The more SOM a soil contains, the greater its levels of soil organic carbon (SOC).[14]

SOC levels result from the interplay of ecosystem processes such as photosynthesis, respiration, and decomposition.[15] First, photosynthesis fixes carbon dioxide into the plant's biomass.[16] SOC is gained directly from the growth and death of plant roots in addition to the transfer of carbon-enriched compounds from roots to soil microbes called mycorrhizae.[17] Roots provide mycorrhizae energy in the form of carbon, and in return, the fungi provide the plant with phosphorous.[18] Decomposition of the plants' biomass by soil microbes produces carbon dioxide, which is released from the soil through the process of respiration.[19] While some SOC is lost through respiration, some carbon is maintained through the formation of humus, which in turn gives the soil a dark color.[20] Humus is resistant to decomposition and spends a long time in the soil relative to less resistant plant debris.[21] Soil erosion also results in the loss of carbon to the atmosphere.[22] When carbon inputs match outputs, there is no net change in SOC levels.[23] However, when carbon inputs from photosynthesis exceed losses from outputs, SOC levels increase.[24]

There is a lot of carbon in soil compared to the amount found in plants and animals (560 gigatons) and the amount in the atmosphere (800

10. *Id.*
11. *Id.*
12. *Id.*
13. *Id.*
14. *Id.*
15. *Id.*
16. *Id.*
17. *Id.*
18. *Id.*
19. *Id.*
20. *Id.*
21. *Id.*
22. *Id.*
23. *Id.*
24. *Id.*

gigatons); terrestrial soil contains an estimated 3,170 gigatons of carbon.[25] In the context of climate change, one-third of the increase of atmospheric carbon dioxide can be attributed to land-use changes such as forest clearing and the cultivation of land for food production.[26] In addition to reforestation and land retirement, adopting sustainable farming practices (like reducing tillage or no-till farming), instituting erosion controls (like contour plowing and terracing), adding organic amendments (like compost, manure, and crop residue) over chemical fertilizers; and using cover crops all have the potential to increase carbon inputs into soil and reduce carbon loss through decomposition.[27] For maintaining soil health, the Natural Resource Conservation Service under the U.S. Department of Agriculture (USDA) recommends farmers disturb soil as little as possible, grow as many different species of plants as practical, keep living plants in the soil as often as possible, and keep the soil covered at all times.[28] Yet, this scenario does not play out in most farmers' fields. Instead, U.S. farm policy incentivizes risky farming over sustainability. But how bad is the problem?

II. FARM POLICY AND SOIL CONSERVATION

The planet loses approximately twenty-four billion tons of good soil each year. At home, the USDA "estimates that millions of tons of topsoil are eroded annually from farmer's fields in the Mississippi River basin."[29] United States soil conservation policy is primarily concerned with sustaining crop yield and has grown out of response to a mid-nineteenth century technological innovation that unlocked the sticky soils of the prairie. First, in 1838, John Deere invented a process for perfecting the steel plow, rendering it capable of tilling prairie subsoil.[30] Attached to a horse or an ox, a Deere plow allowed farmers to increase acreage and yields, to till the previously untillable, and put marginal or unproductive lands into production.[31] Second, in the same decade, Cyrus McCormick patented a mechanized harvester, which cut and stacked wheat on the run.[32] Together, these two machines revolutionized farming from a labor-

25. *Id.*
26. *Id.*
27. *Id.*
28. *Soil Health Management*, USDA NAT. RES. CONSERVATION SERV., https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/mgnt/ [https://perma.cc/V8NA-YPKY?type=image].
29. DAVID R. MONTGOMERY, DIRT 4 (2007).
30. *Id.* at 146.
31. *Id.*
32. *Id.*

dependent enterprise to one limited by capital.[33] By 1920, there were 85,000 tractors working on American farms.[34] With steel plows and mechanized labor, twentieth-century farmers could be fifteen times as productive as their nineteenth-century counterparts.[35]

Eager to capitalize and facing overcrowding in the east, white settlers successfully petitioned the government to open Indian lands in Oklahoma for homesteading in 1889.[36] In order to grow more food, farmers needed more land to plow. Yet, just twenty years later, prairie farms were abandoned at an alarming rate. As early as 1909, the National Conservation Congress reported that "in districts liable to extensive soil erosion, the abandonment of fields [was] disastrous; in some cases the old field erosion not only removes the soil proper, but carries away the subsoil."[37] Further, the National Conservation Commission noted that four million acres of fields had already been destroyed by erosion caused by poor farming practices and recommended that "the holder of the land on which it is permitted to occur should be held liable for resulting damages to neighboring lands and streams."[38] Nonetheless, aggressive cultivation continued, spurred by permissive laws and high wheat prices during World War I.[39] When crop prices fell after the war, many small farmers were burdened with crippling debt and forced to fold.[40] Those able to stay in business required larger machines, working more acreage in order to remain afloat.[41] Soil erosion problems on the prairie compounded in the

33. *Id.*
34. *Id.*
35. *Id.*
36. *Id.* at 147.
37. ABANDONED FARMS, REPORT OF THE NAT'L CONSERVATION COMM'N (Feb. 1909). The report specified that abandonment was caused by:

> general industrial and economic conditions, which are not only susceptible of control, but are steadily changing with increasing density of population. In most rural districts, land is cheap and abundant, and labor costly; and the chief efforts of farmers are directed toward getting the largest returns per unit of labor rather than per unit of land. Especially in newly settled areas, farming is hasty and careless; the same crops are grown year after year until they run out; no attention is given to soil wash or to the maintenance of friability by drainage or otherwise, and little to the selection of seed; while fertilizing and mulching are neglected. In its legitimate use, the soil is abused to the limit. The condition is due partly to ignorance and cupidity, though chiefly to inadequate transportation facilities. With increasing population, markets are brought nearer to the farms, and traffic is facilitated; then, as in some of the northeastern and southern States, intensive or at least careful cultivation is adopted, and generally within a few seasons the productivity is raised even above that of the virgin soil.

38. *Id.*
39. MONTGOMERY, *supra* note 29, at 151.
40. *Id.* at 150.
41. *Id.*

years leading up to the first major windstorm in 1933 as mechanized plows ripped native plants and their roots from the soil.[42] In May of 1934, fields from Montana and Wyoming were shredded by high winds, eroding and accumulating dust in the process.[43] The once wind-resistant prairie had been severely degraded by industrial plowing and prolonged drought.[44] That same year, Chicago saw four pounds of prairie dust dropped on its streets for each of its citizens.[45]

The physical damage from dust storms was enormous, covering an area larger than the state of Virginia.[46] By 1935, the USDA estimated the amount of abandoned farmland at up to fifty million acres, almost an order of magnitude higher than the findings by the National Conservation Congress in 1909.[47] Roosevelt closed remaining public lands to homesteading in 1934 to stem the problem.[48] More than three million people had fled the plains, largely to California, as environmental refugees.[49]

In 1933, Congress responded to economic crises and low crop prices with the Agricultural Adjustment Act of 1933.[50] The first federal soil conservation policy was embodied in the 1933 commodity price controls, which included payments to farmers to rest their lands from production.[51] The act included USDA price support for certain commodities, subsidy payments to farmers, and supply controls.[52] The Soil Erosion Service administered the program, which offered financial incentives for farmers to remove degraded lands from production and restore them as permanent pastures and forests.[53]

Congress declared a new national soil policy with the Soil Conservation and Domestic Allotment Act of 1936 (1936 Act):

> It is recognized that the wastage of soil and moisture resources on farm, grazing, and forest lands of the Nation, resulting from soil erosion, is a menace to the national welfare and that it is declared to be the policy of Congress to provide permanently for the control and prevention of soil

42. *Id.* at 151.
43. *Id.* at 151-52.
44. *Id.* at 152.
45. *Id.* at 151-52.
46. *Id.* at 152.
47. *Id.* at 153.
48. *Id.* at 152.
49. *Id.* at 152-53.
50. Laurie Ristino & Gabriela Steier, *Losing Ground*, 42 COLUM. J. ENV'T L. 59, 80 (2016).
51. *Id.*
52. *Id.*
53. *Id.* at 82.

> erosion to preserve soil, water, and related resources, promote soil and water quality, control floods, prevent impairment of reservoirs, and maintain the navigability of rivers and harbors, protect public health, public lands and relieve unemployment, and the Secretary of Agriculture, from now on, shall coordinate and direct all activities with relation to soil erosion.[54]

Under the Act, "Congress authorized payments to farmers to reduce and shift production from soil depleting surplus crops to soil conserving legumes and grasses."[55] Unfortunately, the program, known then as the Agricultural Conservation Program, failed to achieve its aim of reducing surpluses in commodity crops.[56]

Instead, farmers enrolled their most degraded lands into the program while using the government subsidy to increase yields through the use of more machinery and chemical fertilizers on their best fields.[57] The 1936 act also moved the Soil Erosion Service from the Department of the Interior to the USDA and renamed it the Soil Conservation Service.[58] In 1937, the Bankhead Jones Farm Tenant Act enabled the Soil Conservation Service to purchase and restore Dust Bowl lands, some of which became the National Grasslands, which are now administered by the National Forest Service.[59]

In the period following World War II, demand for U.S. agricultural products shrank and surpluses grew. The Agricultural Act of 1956 established the Soil Bank, which removed twenty-nine million acres from production through two distinct programs.[60] First, the Acreage Reserve required that producers refrain from growing surplus crops, such as corn, wheat, cotton, rice, peanuts, and several varieties of tobacco, or remove any such crops they had already planted.[61] Second, the Conservation Reserve program created three-year contracts "wherein the government would pay for land improvements that increased soil, water, forestry, and wildlife quality if the farmer would agree not to harvest or graze contracted

---

54. 16 U.S.C. § 590(a) (2012).

55. Ristino, *supra* note 50, at 82.

56. Zachary Cain & Stephen Lovejoy, *History and Outlook for Farm Bill Conservation Programs*, CHOICES, 37-38 (2004).

57. *Id.*

58. *See History of NRCS*, NAT. RES. CONSERVATION SERV., https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/about/history/ [https://perma.cc/RQ8E-5DFV].

59. *See* USDA, U.S. FOREST SERV., CHRONOLOGICAL HISTORY OF NATIONAL GRASSLANDS, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsm9_032448.pdf [https://perma.cc/6XBR-XPZV?type=image].

60. Cain, *supra* note 56, at 38.

61. *Id.*

land."[62] Together, the acreage and conservation programs shared the federal objectives of combating soil erosion, subsidizing farmers, and reducing supply to raise commodity prices, but neither had much success. The acreage reserve program was cancelled in 1958 for its failure to reduce the post-war surplus, and farm productivity increased by nearly fifty percent between 1950 and 1970.[63]

In 1961, Congress passed the Emergency Feed Grain Act with the aim of decreasing corn and sorghum production by paying farmers to place producing land into conservation.[64] Over the decade of the 1960s, successive bills increased the contract length available under the conservation reserve program, giving the Secretary of Agriculture authority to make ten-year contracts with farmers who agreed "to convert cropland into uses that would conserve water, soil, wildlife, or forest resources, establish or protect open spaces, natural beauty, or wildlife or recreational resources, or prevent air or water pollution."[65] During this time, farm debt more than doubled while income increased by only a third.[66] Additionally, more than forty percent of American farms disappeared between the 1936 Soil Conservation Act and the 1961 Emergency Grain Feed Act.[67]

In the 1970s, Russia experienced a food shortage, and U.S. Secretary of Agriculture Earl Butz saw an opportunity. Under Butz, farmers were encouraged to plant fence row to fence row and, from 1970 to 1976, farm income increased from $14 billion to $26 billion.[68] While the farm subsidies for conservation totaled $3.7 billion at the start of the decade, by 1975, subsidy payments had fallen to just $500 million paid to cotton, peanut, rice, and tobacco farmers.[69] While production greatly increased, domestic consumption grew only modestly, placing a tremendous pressure on export opportunity.[70] Conservation areas established a decade earlier were placed back into production as soon as their contracts expired by farmers seeking to capitalize on higher wheat prices.[71]

---

62. *Id.*
63. *Id.* at 39.
64. *Id.*
65. *Id.*
66. *Id.*
67. MONTGOMERY, *supra* note 29, at 158.
68. James Risser & George Anthan, *Why They Love Earl Butz,* N.Y. TIMES, (June 13, 1976), https://www.nytimes.com/1976/06/13/archives/why-they-love-earl-butz-prosperous-farmers-see-him-as-the-greatest.html [https://perma.cc/54YP-P6LQ?type=image].
69. *Id.*
70. *Id.*
71. Cain, *supra* note 56, at 39.

III. THE CONSERVATION TITLE

Domestic farm policy in the 1980s featured a renewed interest in conservation measures. The 1985 Farm Bill was the first to feature an exclusive conservation title and included two hallmark programs: Conservation Compliance, consisting of the Sodbuster and Swampbuster programs and administered by the Soil Conservation Service, and the Conservation Reserve Program (CRP) to be administered by the Farm Services Agency.[72]

First, Conservation Compliance set penalties—including loss of subsidies and government crop insurance—for producers on highly erodible land (HEL) that did not implement a farm conservation plan before 1995.[73] In particular, Sodbuster required a conservation plan before new HEL could be developed for cultivation,[74] and Swampbuster prohibited conversion of wetlands to production areas.[75] While these programs were enforced early on, uproar from the regulated community resulted in a loosening of regulations.[76] Sodbuster regulations, for instance, include exceptions for "good faith" compliance violations, graduated rather than complete benefit loss, and allowable variances to compliance.[77]

Second, CRP is a voluntary program, "where producers with eligible land may enter into ten- to fifteen-year contracts to establish long-term covers on land to reduce soil erosion, improve water quality, and enhance wildlife habitat."[78] In exchange for the temporary retirement of their fields, farmers receive annual rental payments.[79] At the end of the term, farmers may put the land back into production or renew their contracts.[80] There are four programs within the CRP: the general signup CRP, continuous CRP, Conservation Reserve Enhancement Program, and the Farmable Wetlands Program.[81] The general signup CRP includes 32.5 million acres of land, is competitive, and uses an environmental benefits index to rank and

72. *Id.*
73. *Id.* at 40.
74. *Id.*
75. *Id.*
76. Ristino, *supra* note 50, at 91.
77. 16 U.S.C. § 3821 (2012); *see also* 16 U.S.C. § 3812 (2012).
78. USDA FARM SERV. AGENCY, ESTIMATING WATER QUALITY, AIR QUALITY, AND SOIL CARBON BENEFITS OF THE CONSERVATION RESERVE PROGRAM, FAPRI-UMC REPORT #01-07 at 2 (Jan. 2007), https://www.fsa.usda.gov/Internet/FSA_File/606586_hr.pdf [https://perma.cc/?type=image].
79. *Id.*
80. *Id.*
81. *Id.*

compare offers.[82] On the other hand, the continuous CRP is not competitive and "accepts eligible land offering to install practices such as riparian buffers, grass filters, bottomland hardwood, and wetland restoration."[83] The number of acres retired and enrolled in the CRP is dependent on Farm Bill acreage caps and crop prices. CRP rental payments since 1995 have totaled $44.4 billion.[84]

The 1990 Farm Bill created the Wetlands Reserve Program (WRP) and the Ag Water Quality protection program. The 1996 bill eliminated the denial of crop insurance subsidies as a possible penalty for noncompliance with Sodbuster and Swampbuster in order to increase producer flexibility.[85] However, crop insurance was eventually relinked to the Conservation Compliance program in the 2014 Farm Bill, which in turn expanded the reach of CCP due to an increase in crop insurance enrollment.[86] The 2014 Farm Bill also merged the WRP with several other conservation easement programs into the Agriculture Conservation Easement Program.[87] Most recently, the 2018 Farm Bill created the Soil Health and Income Protection Pilot program (SHIPP) under CRP "to remove less productive farmland from production in exchange for annual rental payments and to plant low-cost perennial cover crops."[88]

Currently, the CRP has twenty-two million acres currently enrolled, and the 2018 Farm Bill lifted the acreage cap to twenty-seven million acres.[89] This increase bodes well for short-term soil building; however, any such gains may be lost once contracts expire and the land is returned to production. Moreover, the latest conservation reserve program, SHIPP, is limited to the Prairie-Pothole region, located in the upper Midwest and Northern Plains, and did not debut until late 2020, further hindering the program's potential positive effect on building soil health and tempering changing climate.[90]

---

82. *Id.*

83. *Id.*

84. *Conservation Reserve Program,* ENV'T WORKING GRP., https://farm.ewg.org/progdetail.php?fips=00000&progcode=total_cr [https://perma.cc/YB35-EM4Z?type=image].

85. MEGAN STUBBS, CONG. RSCH. SERV., R42459 CONSERVATION COMPLIANCE & U.S. FARM POLICY 9, 16 (2012).

86. Ristino, *supra* note 50, at 92.

87. *Id.* at 93.

88. STUBBS, *supra* note 85, at 5.

89. Press Release, USDA Farm Serv. Agency, USDA Extends Signup Deadline for New Conservation Pilot Program in Prairie Pothole Region (Aug. 26, 2020), https://www.fsa.usda.gov/news-room/news-releases/2020/usda-extends-signup-deadline-for-new-conservation-pilot-program-in-prairie-pothole-region [https://perma.cc/66TF-2Y5A?type=image].

90. *Id.*

IV. WORKING LAND PROGRAMS

In addition to CRP, the farm bill contains two Working Lands Conservation Programs, the Environmental Quality Incentives Program (EQIP)[91] and the Conservation Stewardship Program (CSP).[92] Despite the success of the CRP programs, EQIP and CSP have the greatest acreage enrollment of any other conservation programs.[93] Both EQIP and CSP pay producers to improve, maintain, and manage conservation activities already in place at the time of their application and adopt new conservation activities during the life of a five-year contract with the NRCS.[94]

Under CSP, participants receive an annual land-use payment for the operation-level environmental benefits they produce and technical assistance to implement the necessary improvements.[95] Contracts under CSP must meet or exceed a stewardship threshold for at least two priority resource concerns at the time of application and meet or exceed at least one additional priority resource concern by the end of the contract.[96] Priority resource concerns—such as soil erosion, water quality degradation, degraded plant condition, and inefficient use of irrigation—are set by NRCS in concert with state working groups.[97]

CSP is a great avenue for promoting soil health and increasing carbon capture potential on working lands by financing farmers' adoption of cover cropping and restoration of wildlife habitats or management of

---

91. *A Closer Look at the 2018 Farm Bill: Working Lands Conservation Programs,* NAT'L. SUSTAINABLE AGRIC. COAL. (Jan. 14, 2019), https://sustainableagriculture.net/blog/a-closer-look-at-the-2018-farm-bill-working-lands-conservation-programs/#:~:text=Working%20lands%20conservation%20programs%20help,Quality%20Incentives%20Program%20(EQIP) [https://perma.cc/QC3S-UFQC?type=image].

92. The Conservation Stewardship Program was initially named the Conservation Security Program under the 2002 Farm Bill, and was later renamed under the 2008 Farm Bill. *See Farmers' Guide to the Conservation Stewardship Program*, NAT'L. SUSTAINABLE AGRIC. COAL., 2, (2017), https://sustainableagriculture.net/wp-content/uploads/2016/11/CSP-digital-v3-Nov-2016-FINAL.pdf [https://perma.cc/QGQ9-8A78?type=image].

93. *See Conservation Stewardship Program*, NAT'L SUSTAINABLE AGRIC. COAL., https://sustainableagriculture.net/publications/grassrootsguide/conservation-environment/conservation-stewardship-program/#basics [https://perma.cc/5QYH-JWUJ?type=image].

94. *See id.*

95. *Natural Resources Conservation Service: Conservation Stewardship Program Maps*, USDA, https://www.nrcs.usda.gov/Internet/NRCS_RCA/maps/cp_cstp_maps.html [https://perma.cc/TGB5-RJXJ?type=image].

96. CONGR. RSCH. SERV., R40763 AGRICULTURAL CONSERVATION: A GUIDE TO PROGRAMS 14 (2019), https://fas.org/sgp/crs/misc/R40763.pdf [https://perma.ccPW9Q-MAEM?type=image].

97. *See id.*

riparian areas.[98] The 2018 Farm Bill, however, cut long-term funding for CSP in the fiscal years 2024-2029, meaning less money will be available for the program for the next farm bill in 2022.[99] That, coupled with a lengthy and expensive application process, may dampen the program's effectiveness moving forward.

Next, NRCS's most popular conservation program, EQIP, provides incentive payments and technical assistance for farmers to implement specific conservation practices rather than institute operation-level changes.[100] Fifty percent of the funds are targeted to conservation practices benefiting livestock and ten percent are targeted to practices benefiting wildlife.[101] Additionally, the 2018 Farm Bill created EQIP incentive contracts to spur farmer adoption of such conservation practices as cover cropping and crop diversity.[102] Beginning in 2020, states may provide increased payment rates for high-priority practices, such as those that:

> address specific causes of ground or surface water impairment relating to excessive nutrients, address the conservation of water to advance drought mitigation and declining aquifers, [or] meet . . . other environmental priorities and other priority resource concerns identified in habitat or other area restoration plans, or is geographically targeted to address a natural resource concern in a specific watershed.[103]

V. THE INSURANCE PROBLEM

Despite the establishment of soil and land conservation programs, the transition to sustainable agriculture remains undercut by the crop insurance system. The main component of the farm safety net, crop

---

98. *See* NAT. RES. CONSERVATION SERV., USDA, CONSERVATION STEWARDSHIP PROGRAM FOR WILDLIFE, https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1300011.pdf [https://perma.cc/MK5A-PN5D?type=image].

99. *See 2018 Farm Bill Drilldown,* NAT. SUSTAINABLE AGRIC. COAL. (Dec. 13, 2018), https://sustainableagriculture.net/blog/2018-farm-bill-drilldown-conservation/ [https://perma.cc/7DVD-AKRW?type=image].

100. *Environmental Quality Incentives Program*, USDA NAT. RES. CONSERVATION SERV., https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/ [https://perma.cc/VFW9-BCPT?type=image].

101. Press Release, *supra* note 89.

102. *See Environmental Quality Incentives Program*, *supra* note 100. Also new are advance payments available to help offset costs related to purchasing materials or contracting for historically underserved participants, which includes limited resource farmers and ranchers, beginning farmers or ranchers, socially disadvantaged farmers or ranchers, and veteran farmers or ranchers; *see also Historically Underserved Farmers and Ranchers*, USDA NAT. RES. CONSERVATION SERV., https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/people/outreach/slbfr/?cid=nrcsdev11_001040 [https://perma.cc/R6SB-JS8Y?type=image].

103. *Id.*

insurance, actually incentivizes risky planting practice by favoring farmers whose planting practices result in total crop loss over those who achieve reduced yields.[104] Like American soil conservation policy, the Federal Crop Insurance Program (FCIP) also began in the wake of the Dust Bowl in response to the collapse in productivity.[105] Currently, the FCIP features three levels of government subsidies: crop insurance premiums, insurer operating costs, and shared underwriting risks.[106] The FCIP protects farmers against losses from below average yields, low prices, or a combination of the two.[107] However, instead of encouraging farmers to adopt risk reducing practices, the program hinders farmer-driven risk management through several key policies.[108]

A. Yield Exclusion

First, Congress added the Actual Production History (APH) Yield Exclusion (YE) provision to the 2014 Farm Bill. APH YE allows for the exclusion of an actual yield for a crop year when the USDA Risk Management Agency (RMA) "determines the county per planted acre yield for a crop year was at least 50 percent below the simple average of the per planted acre yield for the crop in the county for the previous 10 consecutive crop years."[109] Traditionally, because premium rates are tied to farmers' yield success over time, farmers who consistently achieved high yields paid lower insurance premiums, and farmers who produced inconsistent yields with more lost years paid higher premiums. The APH YE provision, however, tips the scale by allowing the exclusion of bad years in the calculation of the average yield, arguably reducing the financial burden on farmers with long-term poorer yields.[110] However, in some areas, more than fifteen bad years may be excluded, leading to a

104. CLAIR O'CONNOR & LARA BRYANT, NAT'L RES. DEF. COUNCIL, IP 17-11-A, COVERING CROPS: HOW FEDERAL CROP INSURANCE PROGRAM REFORMS CAN REDUCE COSTS, EMPOWER FARMERS, AND PROTECT NATURAL RESOURCES 1 (Dec. 2017).

105. *Id.* at 2.

106. *Id.*

107. *Id.*

108. *Id.* at 3.

109. *Actual Production History Yield Exclusion*, USDA RISK MGMT. AGENCY (Dec. 18, 2014), https://www.rma.usda.gov/en/News-Room/Frequently-Asked-Questions/Actual-Production-History-Yield-Exclusion [https://perma.cc/W3MW-NKVE?type=image].

110. Anna Weir Schechinger & Craig Cox, *Is Federal Crop Insurance Policy Leading to Another Dust Bowl?,* ENV'T WORKING GRP. (Mar. 22, 2017), https://www.ewg.org/research/federal-crop-insurance-policy-leading-another-dust-bowl [https://perma.cc/MPW2-G99J?type=image].

significant distortion of data.[111] Rather than encouraging farmers to adapt more resilient planting practices in order to achieve consistent production and thus lower premium rates, the policy underwrites risky farming at a high price tag. The Congressional Budget Office estimated that farmers electing the yield exclusion option would cost the government $35.7 million a year between 2014 and 2024 in premium subsidies.[112]

B. Prevented Planning

Next, prevented planting provisions in crop insurance policies also alter risk calculations under the FCIP. RMA defines prevented planting as the "failure to plant an insured crop with the proper equipment by the final planting date designated in the insurance policy's Special Provisions or during the late planting period."[113] Prevented plantings occur when adverse conditions make it impracticable for farmers to plant insured crops and may result in decreased yields. Because premium rates are tied to a farmer's yield history, low yields in a particular crop may cause the insurance premium to rise. Under the rules, if a farmer claims a "partial prevented planting" yield loss, the farmer may substitute that year in their average yield history with sixty percent of their average yield and in turn pay a higher deductible.[114] However, if a farmer completely abandons the impaired field and claims a "full prevented planting loss," the farmer may completely exclude that year from their average yield history.[115] This system creates an incentive for farmers to abandon fields in seasons with adverse conditions rather than take measures to ensure a partial yield by adopting more resilient practices or planting a second crop.[116] This incentive to abandon is so potent that the USDA's Inspector General found that farmers elected a full prevented planting loss claim over a partial

111. *Id.*

112. Memo to Frank D. Lucas, Chairman, U.S. H.R. Comm. on Agric., regarding effects on direct spending and revenues of the conference agreement on H.R. 2642, as reported on January 27, 2014, CONGR. BUDGET OFFICE, https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/costestimate/hr2642lucasltr00.pdf (https://perma.cc/CEX9-4HSN?type=image] (projecting a ten-year cost of $357 million for "Adjustment in Actual Producer History Yields").

113. USDA RISK MGMT. AGENCY, *Prevented Planning*, https://www.rma.usda.gov/en/Topics/Prevented-Planting.

114. *See* O'CONNOR, *supra* note 104, at 3.

115. *Id.*

116. REPORT 05601-0001-31: OIG AUDITED CONTROLS OVER THE PREVENTING PLANTING PROVISIONS OF THE FEDERAL CROP INSURANCE PROGRAM, USDA OFFICE OF THE INSPECTOR GENERAL, https://www.usda.gov/oig/webdocs/05601-0001-31.pdf [https://perma.cc/K3GP-93W6?type=image].

prevented loss claim ninety-nine percent of the time between 2008 and 2011.[117]

C. Crop Diversity

The benefits of planting a diverse range of crops are legion. A natural risk management tool, crop diversity can increase a farmer's protection against weather events, crop-specific pest infestations, volatile prices, and rising input costs.[118] Increased crop diversity can also lead to higher yields over time and help capture carbon, mitigating the effects of climate change.[119] However, under the FCIP most policies require farmers to sign up for individual coverage of each crop in each county. Therefore, the more crops a farmer grows, the more arduous it is to enroll in insurance coverage. Compounding matters, adding a crop to the rotation triggers an increase in deductibles and premiums until a yield history is established for the new crop.[120] The more crops in a given rotation, the longer the process will take. Further, individual coverage is not available for all crops.

To assist diversified farmers, the 2014 Farm Bill introduced a new insurance policy called Whole Farm Revenue Protection (WFRP), but participation in the program remains low.[121] WFRP differs from individual crop insurance policies by insuring an entire farm regardless of the combination of crops and livestock.[122] Like other revenue insurance policies, it insures farmers against drops in price as well as yield.[123] Unlike individual crop policies, which are county specific, WFRP is available in every county of the country.[124] WFRP was first made available in the 2015 insurance year and, as of 2018, represented $2.6 billion in liabilities.[125]

---

117. *Id.* at 10.

118. *See* O'CONNOR, *supra* note 104, at 4.

119. *Id.*

120. *See* 7 U.S.C. 1508(g)(2(B); O'CONNOR, *supra* note 104, at fn.22 (New crops are given a "transitional yield" rate until a farmer establishes four years of that particular crop. T-Yields are usually lower than actual yields, resulting in higher effective deductibles. The more crops in a rotation, the longer it takes to establish a rate based on actual yields.)

121. Mechel S. Paggi, *The Use of Crop Insurance in Specialty Crop* Agriculture, AGRIC. & APPLIED ECON. ASS'N, https://www.choicesmagazine.org/choices-magazine/theme-articles/crop-insurance-in-the-20182019-farm-bill/the-use-of-crop-insurance-in-specialty-crop-agriculture [https://perma.cc/Y84W-NKT8?type=image].

122. *See id.*

123. *Whole Farm Revenue Protection for Diversified* Farms, NAT. SUSTAINABLE AGRIC. COAL., https://sustainableagriculture.net/publications/grassrootsguide/credit-crop-insurance/whole-farm-revenue-protection-for-diversified-farms/ [https://perma.cc/JP8N-M7NS?type=image].

124. *Id.*

125. *Id.*

Despite its wide coverage net, WFRP policies represented just three percent of all FCIP liabilities in 2017.[126] Some speculate that a reason for low participation is that producers are reluctant to provide tax return data in compliance with policy guidelines.[127] Other reasons for low participation include poor advertisement of the program's availability to eligible farmers and a lack of understanding on the part of insurance agents.[128] Changes to the program in 2020, such as increasing the limit on livestock and nursery production from $1 million to $2 million and expanding disaster protection, are designed to increase participation,[129] yet the reality of a growing monoculture system persists, supported not only by farm bill subsidies for corn, soybeans, wheat, cotton, and rice,[130] but also by the FCIP itself.[131] Increased monoculture cropping may lead to surplus, which in turn leads to commodity price drops. Since FCIP policies cover falling prices, monoculture surpluses may increase insurance payouts. In short, it pays to focus on one crop to the detriment of soil and ultimately the environment.

D. Cover Crops

Cover crops are cultivated in order to improve soil health, boost yields, prevent soil erosion, manage pests and disease, and make fields more resilient to periods of drought.[132] Additionally, cover cropping may help absorb heavy springtime rains, in turn diminishing prevented planning losses.[133] Prior to 2018, producers had to contend with confusing guidelines, insurance audits, and potential claim refusals for using cover crops between cash crop plantings. The 2018 Farm Bill, however, ordered

126. CONGR. RSCH. SERV., R45459 FEDERAL CROP INSURANCE: SPECIALTY CROPS, 22 (Jan. 14, 2019), https://fas.org/sgp/crs/misc/R45459.pdf [https://perma.cc/W3GC-GAVX?type=image].

127. *Id.* WFRP policies require producers to provide five consecutive years of Schedule F from their federal tax forms.

128. Cain, *supra* note 56, at 4.

129. News Release, *RMA Announces Changes to Whole-Farm Revenue Protection for 2020,* USDA RISK MGMT. AGENCY (Aug. 30, 2019), https://www.rma.usda.gov/News-Room/Press/National-News-Archive/2019-News/2019-News/Whole-Farm-Revenue-Protection-Policy-for-2020 [https://perma.cc/8MPV-EZ6D?type=image].

130. *Farm Subsidy Primer*, ENV'T WORKING GRP., https://farm.ewg.org/subsidyprimer.php [https://perma.cc/T5TW-F5GU?type=image].

131. O'CONNOR, *supra* note 104, at 4.

132. Andy Clark, *Cover Crops*, SUSTAINABLE AGRIC. RSCH. & EDUC., https://www.sare.org/Learning-Center/Topic-Rooms/Cover-Crops/ [https://perma.cc/5PFC-R32R?type=image].

133. *Id.*

a change to the treatment of cover crops for insurance purposes.[134] A farmer's choice to use cover crops will now be reviewed for Good Farming Practice, the same standard applied to other management decisions, such as seeding rates and fertilizer application.[135] This is welcome news, as a 2016-2017 survey from SARE showed that farmers who use cover crops are on the rise and past users are happy with the results.[136] Notably, farmers responded that they adopted cover crops out of concern for soil health and are unlikely to abandon the practice should commodity prices fall.[137] Of non-users surveyed, one-third of participants either strongly agreed or agreed with the statement "crop insurance rules make me nervous about trying cover crops."[138] Fifty-three percent of non-users responded that increased incentives and cost-sharing would be helpful in their decision whether or not to adopt.[139] Under heavy rains, cover crops sop up water via evapotranspiration.[140] Additionally, if used in concert with no-till, cover crop mulch increases soil porosity and conserves moisture over time, mitigating the effects of drought.[141]

VI. CONCLUSION

In the face of an unabated soil erosion problem and a changing climate, farm bill conservation programs and the FCIP are sorely insufficient. While increased investment in the CRP would lead to more retired acres and more time for soil building, the fact that easement contracts are term-limited means that any gains to soil health would be easily lost as once retired lands return to production. For this reason,

---

134. Managers Bulletin: MGR-19-017, Cover Crop Guidance for the 2020 and Succeeding Crop Years (June 28, 2019), USDA RISK MGMT. AGENCY, https://www.rma.usda.gov/Policy-and-Procedure/Bulletins-and-Memos/2019/MGR-19-017 [https://perma.cc/99TZ-S3DU?type=image].

135. *Id.* The Common Crop Insurance Policy Basic Provisions defines Good Farming Practices as "The production methods utilized to produce the insured crop and allow it to make normal progress toward maturity and produce at least the yield used to determine the production guarantee or amount of insurance, including any adjustments for late planted acreage, which are those generally recognized by agricultural experts or organic agricultural experts, depending on the practice, for the area." Common Crop Insurance Policy Basic Provisions 3 (2019).

136. COVER CROP SURVEY 2016-2017 at 12, SUSTAINABLE AGRIC. RES. & EDUC., https://sare.org/wp-content/uploads/2016-2017-Cover-Crop-Survey-Report.pdf [https://perma.cc/SS3G-83BX?type=image].

137. *Id.* at 14 (soil health), at 18 (economic).

138. *Id.* at 41.

139. *Id.* at 45; COVER CROPS FOR SUSTAINABLE CROP ROTATIONS, SUSTAINABLE AGRIC. RSCH. & EDUC. at 4, https://www.sare.org/wp-content/uploads/Cover-Crops-for-Sustainable-Crop-Rotations.pdf [https://perma.cc/5LWD-ZAFA?type=image].

140. *Id.*

141. *Id.*

increased investment in the working lands programs is likely to have a better long-term effect. Under EQIP and CSP, grants may focus on soil conservation practices, such as transitioning farms from plowing to no-till. Furthermore, with changes to the FCIP concerning cover cropping, increasing funding for education under EQIP and CSP could lead to greater adoption of the practice. As of 2019, twenty-nine states supported cover crop education and incentive payments within their state.[142] With CRP lands coming out of retirement, greater use of no-till and cover cropping would ensure any built soil is not squandered while lessening erosion and increasing carbon capture.

Additionally, farmers enrolled in the crop insurance program must comply with Title II of the farm bill in order to maintain their coverage. Under the current provisions, this means that an enrolled farmer may not plant on either highly erodible land or a converted wetland. The conservation title of the bill could be amended to include provisions tying the use of soil building practices to either eligibility for insurance coverage itself or rebates on premiums. As the largest component of the farm safety net, the FCIP currently insures eighty percent of acreage for commodity crops. Thus, amending the farm bill conservation title to favor sustainable practices could have a large effect on climate change mitigation. Introducing provisions that call for cover cropping and reduced tilling would also significantly stem erosion, saving soil and protecting streams from agricultural runoff.

142. *See* COVER CROP PROGRAMS AND INCENTIVES, LANDSCAPE ASSESSMENT, FALL 2019, ECON. & ENV'T RISK COAL., https://s31207.pcdn.co/wp-content/uploads/sites/4/2019/10/Cover-Crop-Programs-and-Incentives.pdf [https://perma.cc/D8SJ-VGM2?type=image].