

**2023 Wetland Reserve Easement Program
Economic Assessment:
Estimated Commodity Program,
Crop Insurance Premium Subsidy, and
Disaster Assistance
Cost-Avoidance Benefits**



**Prepared for Wildlife Mississippi
By Blackwoods Group, LLC
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Wetland Reserve Easement Program Economic Assessment: Estimated Farm Program Cost Avoidance Benefits

1. EXECUTIVE SUMMARY

1.1. OBJECTIVE

The objective of this project is to demonstrate that the net cost of the NRCS Wetland Reserve Easement (WRE) program^{1 2} is significantly less than the published program costs suggest because of avoided Federal outlays for commodity programs, crop insurance premium subsidies, and supplemental disaster assistance. This report provides estimates of the potential cost avoidance benefits created by the WRE program through reduced Federal outlays associated with farm support programs.

The conceptual foundation for the analysis is that when cropland is restored to a wetland through enrollment in WRE, an economic benefit is created by avoiding future costs associated with commodity, Federal crop insurance, and disaster assistance programs.

Although not evaluated in this project, enrollment in WRE also creates a wide range of environmental and economic benefits related to flood mitigation, water quality protection, groundwater recharge, carbon sequestration, wildlife habitat, hunting opportunities, and outdoor recreation, among others.³

1.2. FINDINGS

Potential Cost Avoidance Benefits –

From 2005 through 2020, the national average cost avoidance benefits associated with enrolling cropland in WRE were estimated to be \$70 per acre per year. These cost avoidance benefits are from three sources:

- \$34 per acre, per year from reduced commodity program outlays
- \$22 per acre per year from reduced Federal crop insurance premium subsidies
- \$14 per acre per year from reduced supplemental and ad-hoc disaster assistance payments

The present value of those avoided costs over 100 years at a discount rate of 2.1 percent is \$2,916 per acre. Because most WRE easements are permanent, the cost avoidance benefits

¹ WRE is a sub-program of the Agricultural Conservation Easement Program in Title II of the Farm Bill.

² When referring to the Wetland Reserve Easement Program or its predecessor the Wetland Reserve Program (WRP) this report uses the acronym WRE, unless presenting material related to a specific WRP issue.

³ For an overview of the economic benefits generated by wetlands see: Economic Benefits of Wetlands, US Environmental Protection Agency, https://conservationtools-production.s3.amazonaws.com/library_item_files/1038/957/Economic_Benefits_of_Wetlands.pdf?AWSAccessKeyId=AKIAIQFJLILYGVDR4AMQ&Expires=1689527030&Signature=1ggj5RXNeXTYnEJ2QQbX3yO2LBk%3D

will continue in perpetuity. If 85,000 acres of cropland were enrolled in WRE each year over 10 years, the total cost avoidance benefits generated over just 10 years would amount to about \$268 million.

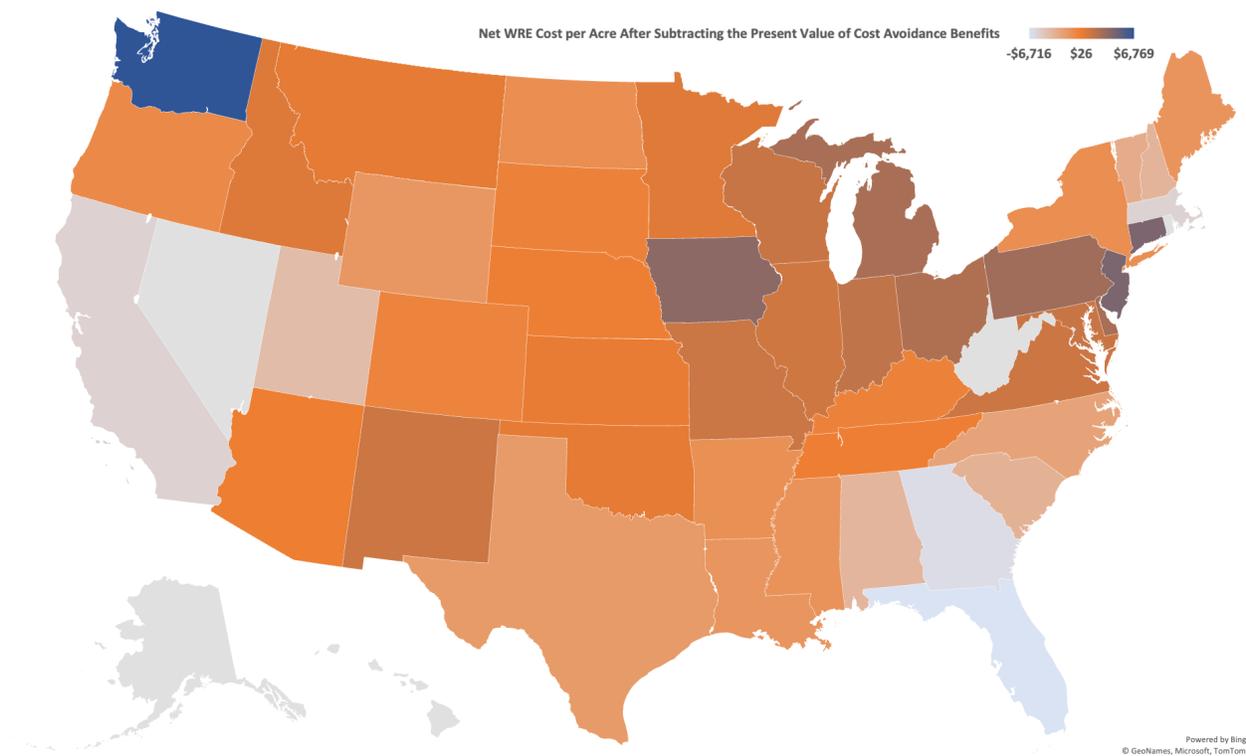
WRE Cost are Significantly Off-Set by Reduced Farm Safety Net Program Outlays –

If the national average of the present value of farm program cost avoidance associated with commodity programs, crop insurance premium subsidies and disaster assistance (\$2,916 per acre) is subtracted from the average WRE easement purchase and wetland restoration costs (\$3,135 per acre), the average net cost of enrollment in WRE is about \$219 per acre. However, this amount can vary considerably from state to state.

Farm Program Cost Avoidance Benefits Exceed WRE Enrollment Costs in 27 States –

Combining higher-than-average USDA farm program payments and lower-than-average agricultural land values creates the opportunity to achieve farm program payment cost avoidance benefits that are greater than costs associated with WRE easement acquisition and wetland restoration. Although all states have WRE-related cost avoidance benefits, based on 2005-2020 data, 27 states have cost avoidance benefits that are greater than the WRE easement and restoration costs.

WRE Net Cost After Subtracting the Present Value of Commodity Program, Federal Crop Insurance Subsidies, and Supplemental and Ad Hoc Disaster Assistance Cost Avoidance Benefits

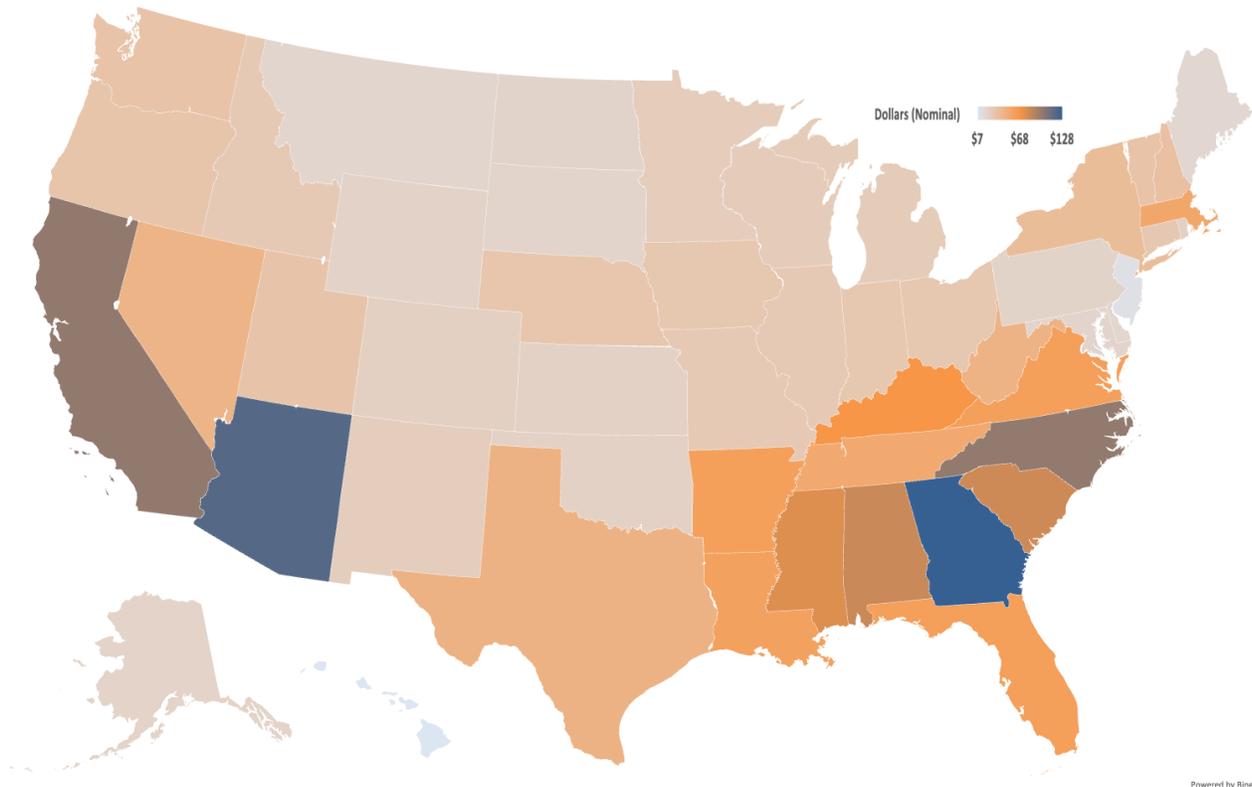


USDA Farm Program Payments Vary Considerably Across States –

USDA commodity program outlays vary by crop and geographic location. From 2005 through 2020, the highest commodity payments per acre were in Georgia (\$128/year), Arizona

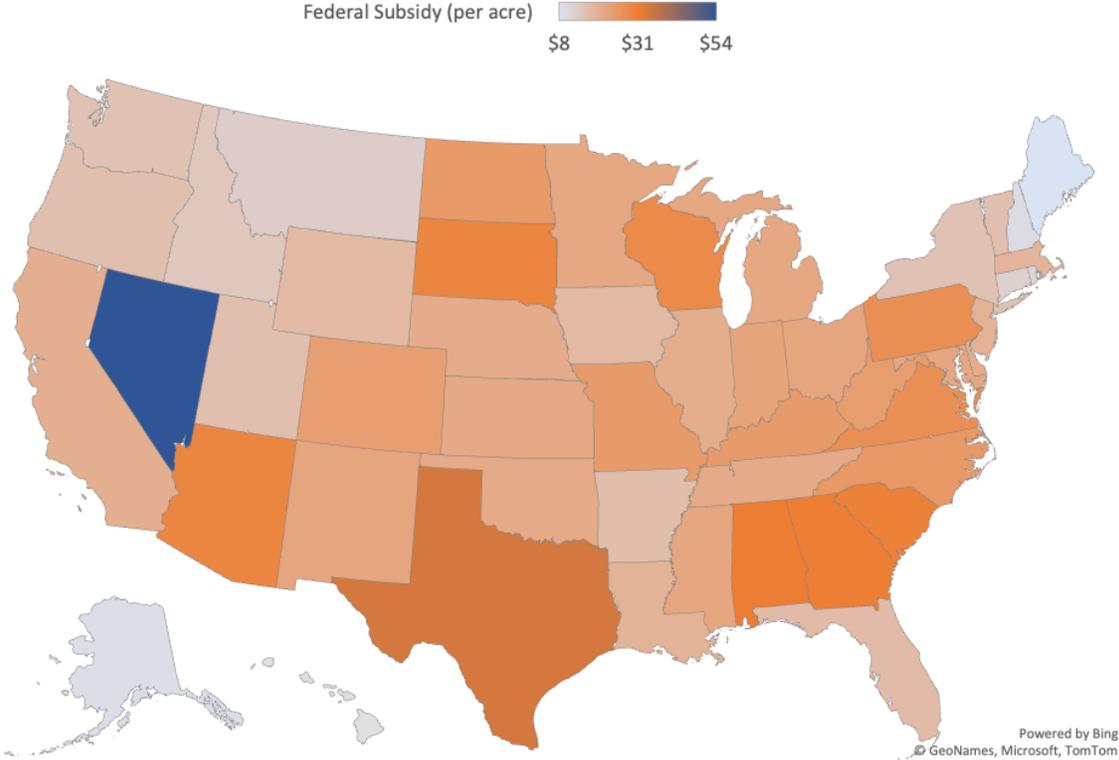
(\$119/year), California (\$100/year) and North Carolina (\$100/year). The lowest payments per acre were in Hawaii (\$7/year), New Jersey (\$11/year), Delaware (\$19/year) and Maine (\$19/year). In general, commodity payments per acre are highest in the Southeast and lowest in the Northern Plains and Mid- Atlantic.

Average Annual Commodity Payments per Acre, by State, 2005 – 2020 (Nominal Dollars)



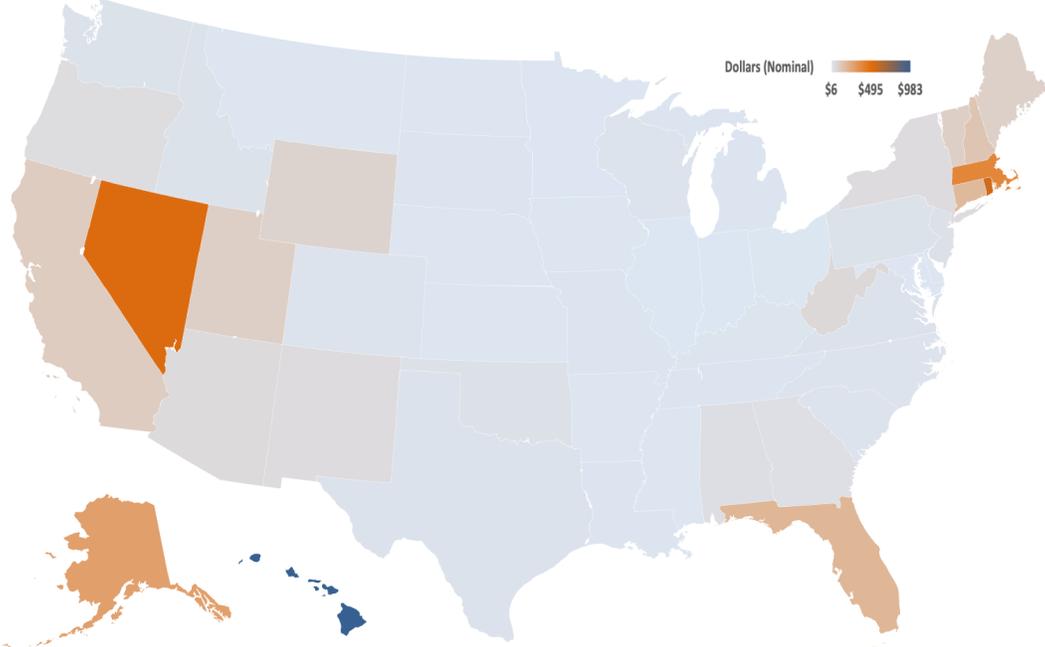
Average annual crop insurance subsidies also vary widely, ranging from a high of \$54 per acre, per year in Nevada to a low of \$8 per acre in Maine.

Average Annual Federal Crop Insurance Subsidy per Acre, by State, 2005 – 2020 (Nominal Dollars)



The widest range of average annual outlays occurs with supplemental and ad hoc disaster assistance payments which vary from \$6 per acre in Illinois and Indiana to nearly \$1,000 per acre in Hawaii.

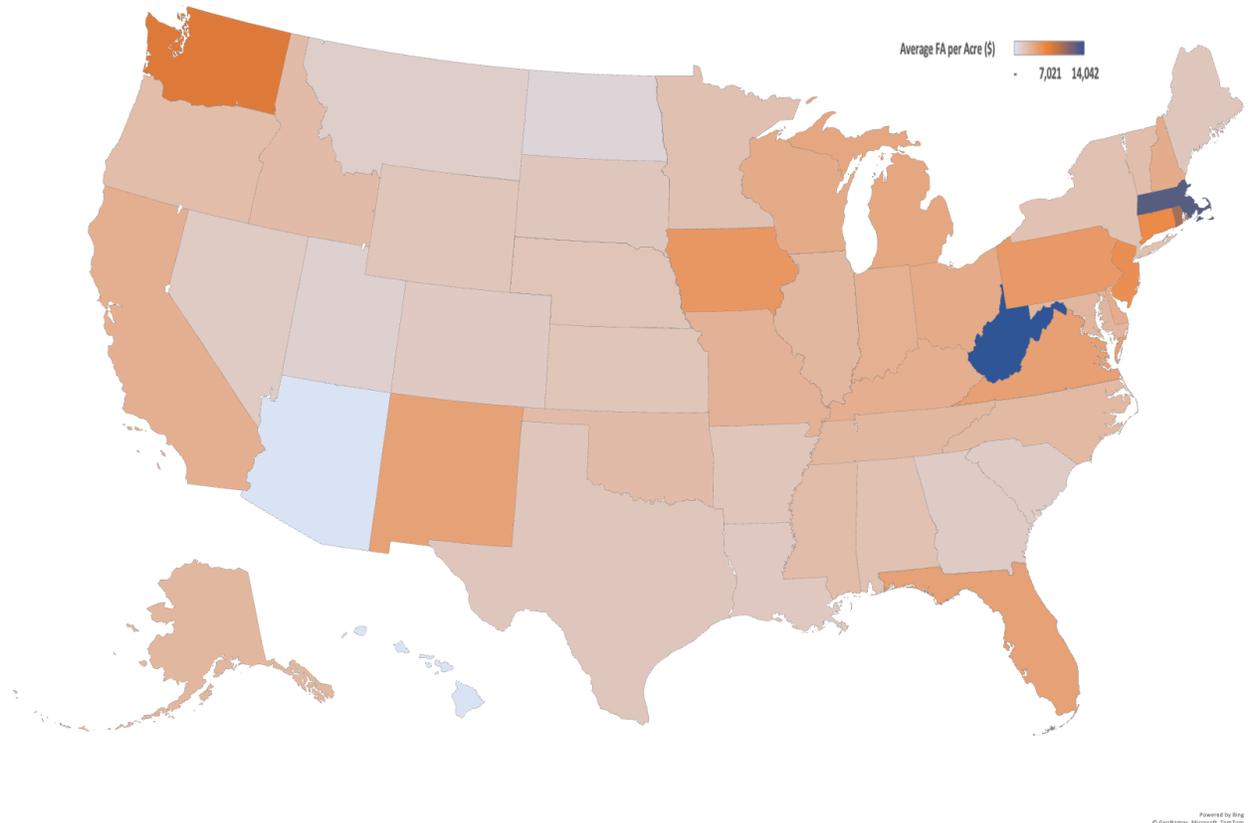
Annual Average Per Acre Supplemental and Ad Hoc Disaster Assistance Payments by State, 2005 – 2020 (Nominal Dollars)



WRE Easement Acquisition and Restoration Costs –

From 2005 through 2020, WRE easement acquisition and wetland restoration financial assistance costs averaged \$3,135 per acre. WRE easement and restoration financial assistance costs vary from state to state with per acre costs ranging from over \$10,000 in states with limited WRE enrollment to as low as \$1,161 in North Dakota.

Average WRE Easement Acquisition and Restoration Costs per Acre, 2005 – 2020 (Nominal Dollars)



The Present Value of Cost Avoidance Benefits is Significant –

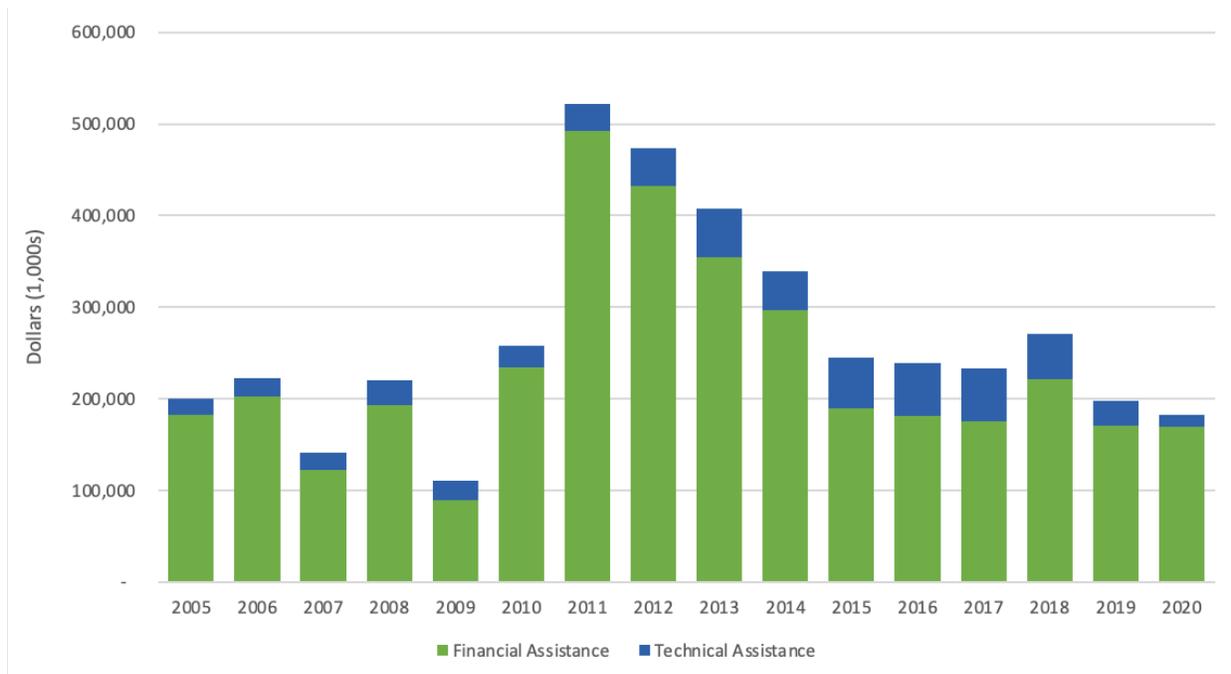
The WRE program has enrolled over 2.9 million acres since its inception. Given the present value of the cost avoidance benefits discussed above, a rough estimate of the present value of WRE program cost avoidance benefits since 1990 is \$8.4 billion.

2. WRE PROGRAM

2.1. PROGRAM OVERVIEW

From its inception in 1993 through October 2022, USDA wetland reserve programs have enrolled nearly 2.9 million acres of agricultural land.⁴ The financial assistance and technical assistance outlays for WRE program easements from 2005 to 2020 are displayed in Figure 1.

**Figure 1 - WRE Financial and Technical Assistance Outlays, 2005 to 2020
(Nominal Dollars)**



Wetland easement program expenditures, as displayed in Figure 1, peaked in 2011 at over \$500 million, but program expenditures have since fallen to less than \$200 million in 2020. The low level of funding from 2005 to 2010 was due in part to nearing the WRP acreage cap (2.275 million acres) established by the 2002 Farm Bill and in part to switching the to the “Yellow Book” appraisal standards⁵.

The 2008 Farm Bill raised the acreage cap to 3.041 million acres and removed the annual enrollment cap, which resulted in annual expenditures increasing significantly in the years following the 2008 Farm Bill changes. Because the easement acquisition process can take

⁴ The 2.9 million acres includes WRP, WRE, RCPP-WRE, and EWRP. WRE and WRP funded acres account for 97 percent of the total wetland easement acreage. <https://www.farmers.gov/data/easements/overview>.

⁵ The Appraisal Foundation, in partnership with the US Department of Justice, publishes the *Uniform Appraisal Standards for Federal Land Acquisitions*, commonly known as the “Yellow Book.” The purpose of the Yellow Book is to promote fairness, uniformity, and efficiency in the appraisal of real property in federal land acquisitions. https://www.appraisalfoundation.org/imis/TAF/Standards/Appraisal_Standards/Uniform_Appraisal_Standards_for_Federal_Land_Acquisitions/TAF/Yellow_Book.aspx?hkey=77e5c6a0-ff07-4aa0-be1b-b7e0f0fa0360.

multiple years to complete, expenditure of funds associated with the higher easement cap lagged the 2008 Farm Bill amendments to WRP authorization.

In 2014, expenditures fell to 2007 levels, in large part due to implementation delays associated with the mid-fiscal year enactment of the 2014 Farm Bill and the need to develop new policies and procedures for the program. The 2014 Farm Bill included two major changes to the WRP program. First, it created the umbrella Agricultural Conservation Easement Program (ACEP) that consolidated the functions of the Wetlands Reserve Program, Grassland Reserve Program (GRP) easements, and the Farm and Ranch Lands Protection Program (FRPP). ACEP has two components, the Agricultural Land Easement program (ALE) that consolidated FRPP and GRP easements, and WRE, which was the former WRP program. Annual funding goes to ACEP and then those funds are allocated between WRE and ALE based on program demand and performance at the state level. The second change made by the 2014 Farm bill was the shift from an acreage cap to authorized funding levels. In addition, the annual funding from the 2014 Farm Bill for ACEP was significantly less than funding made available under the 2008 Farm Bill for WRP, GRP easements, and FRPP.⁶

The 2018 Farm Bill reauthorized and amended ACEP with most changes affecting ALE. Amendments to WRE centered on changes to compatible use and vegetative cover requirements. Funding for ACEP was also increased from \$250 million to \$450 million annually for FY-2019 through FY-2023⁷.

The consolidation of easement programs into ACEP has created year-to-year uncertainty in WRE funding levels because WRE competes with ALE for funding each year. In addition, WRE funding is substantially less than it was under the 2002 or 2008 Farm Bills. However, the consolidation also benefited WRE in that it gained a budget baseline. Unlike other Farm Bill conservation programs, WRP and the Conservation Reserve Program (CRP)⁸ had no baseline because of its annual acreage enrollment cap. Consequently, in past Farm Bills, funding for WRP had to come from other conservation programs or be provided through increases in overall Farm Bill funding.

Program data from FY-2021, highlights the demand for WRE, and by extension the shortfall in funding. In FY-2021, only 6 percent of WRE applications were funded, leaving a significant backlog demand for the WRE program.

2.2. PROGRAM COSTS

This section discusses WRE program costs on a national and state scale; provides an overview of the Geographic Area Rate Cap (GARC); and summarizes WRE costs in terms of national and state average cost per acre. The data presented here is for perfected easements (i.e., easements recorded in the county courthouse) because data are subject to change until easements are perfected, which generally spans more than one fiscal year.

⁶ <http://www.ers.usda.gov/agricultural-act-of-2014-highlights-and-implications/conservation.aspx>

⁷ <https://crsreports.congress.gov/product/pdf/R/R40763>

⁸ Unlike the WRE program, the CRP program still is an acreage-based program, and it currently does not have baseline funding in the Farm Bill. However, there appears to be some interest in Congress for switching the CRP program to a funding-based program in the 2023 Farm Bill.

The interim final rule and program manual for WRE allows for three different easement valuation methodologies: Area-Wide Market Analysis (AWMA)/appraisals, Geographic Area Rate Caps, or landowner offers. The GARCs will always be less than the fair market value of the land as determined by the AWMA because the landowner retains certain reserved rights (for example: title, undeveloped recreation, and the right to control access). The predominant approach for valuing WRE easements uses Geographic Area Rate Caps which are set by NRCS state conservationists in consultation with the State Technical Committees.⁹

The costs to acquire and restore wetlands in the WRE program vary significantly across the country. Costs are divided into two categories: technical assistance and financial assistance. Technical assistance costs are related to managing the program, working with landowners, and designing wetland restoration practices. Financial assistance includes costs related to easement purchases such as easement payments to landowners; due diligence (e.g., the costs associated with obtaining land appraisals and undertaking title searches); and costs associated with wetland restoration (e.g., costs related to the conservation practices needed to restore a given wetland).

Table 1 provides a summary of total wetland reserve easement costs¹⁰, agreements, acres enrolled, and costs per acre from 2005 to 2020. Over the 16-year period covered in Table 1, nearly 7,900 easements were recorded covering about 1.36 million acres at a total cost of \$4.26 billion. The average financial and technical assistance costs per acre was \$3,135.¹¹

Table 1 – WRP and WRE, National Financial and Technical Assistance Costs, Number of Perfected Agreements, Acres Enrolled, and Average Costs per Acre, 2005 to 2020 (Nominal Dollars)

Fiscal Year	Perfected Agreements		Financial Assistance Costs (\$1,000s)				Technical Assistance Costs (\$1,000s)	Total Cost (FA & TA) (\$1,000s)	Average Total Cost Per Acre	Average Financial Assistance Cost Per Acre	Average Technical Assistance Cost Per Acre
	Count	Acres	Easement Payments	Restoration	Due Diligence	Total					
2005	757	123,319	\$143,868	\$30,965	\$7,506	\$182,339	\$18,283	\$200,622	\$1,627	\$1,479	\$148
2006	298	76,060	\$132,930	\$60,692	\$9,172	\$202,795	\$19,968	\$222,763	\$2,929	\$2,666	\$263
2007	414	53,731	\$71,618	\$43,272	\$7,022	\$121,912	\$19,445	\$141,357	\$2,631	\$2,269	\$362
2008	416	49,671	\$145,255	\$39,932	\$8,365	\$193,553	\$26,727	\$220,279	\$4,435	\$3,897	\$538
2009	997	166,221	\$51,167	\$31,880	\$6,359	\$89,405	\$21,101	\$110,506	\$665	\$538	\$127
2010	1,260	243,021	\$192,673	\$26,572	\$15,607	\$234,851	\$22,875	\$257,727	\$1,061	\$966	\$94
2011	952	170,686	\$435,929	\$35,036	\$21,940	\$492,905	\$28,889	\$521,794	\$3,057	\$2,888	\$169
2012	815	144,014	\$362,720	\$51,317	\$18,466	\$432,503	\$41,522	\$474,024	\$3,292	\$3,003	\$288
2013	505	75,597	\$276,908	\$57,521	\$19,869	\$354,298	\$52,894	\$407,192	\$5,386	\$4,687	\$700
2014	259	45,634	\$224,929	\$59,280	\$12,665	\$296,874	\$42,875	\$339,749	\$7,445	\$6,506	\$940
2015	192	42,895	\$122,313	\$57,889	\$9,208	\$189,410	\$55,182	\$244,592	\$5,702	\$4,416	\$1,286
2016	264	35,642	\$121,027	\$52,906	\$7,083	\$181,015	\$57,520	\$238,536	\$6,693	\$5,079	\$1,614
2017	407	82,206	\$119,679	\$46,396	\$9,041	\$175,116	\$58,017	\$233,133	\$2,836	\$2,130	\$706
2018	170	27,834	\$148,707	\$61,817	\$11,108	\$221,632	\$49,389	\$271,021	\$9,737	\$7,963	\$1,774
2019	159	18,568	\$114,045	\$50,212	\$6,772	\$171,029	\$26,391	\$197,420	\$10,633	\$9,211	\$1,421
2020	17	4,722	\$113,185	\$50,470	\$5,939	\$169,594	\$12,829	\$182,423	\$38,633	\$35,916	\$2,717
Total	7,882	1,359,820	\$2,776,953	\$756,155	\$176,122	\$3,709,230	\$553,907	\$4,263,137			
Annual Average	493	84,989	\$173,560	\$47,260	\$11,008	\$231,827	\$34,619	\$266,446	\$3,135	\$2,728	\$407

⁹ State Technical Committees include members from a wide variety of natural resource and agricultural interests and provide advice to NRCS and other USDA agencies on natural resources conservation issues. <https://www.nrcs.usda.gov/state-technical-committees>

¹⁰ FY-2013 was the last year with new WRP agreements.

¹¹ With the implementation of ACEP, NRCS financial tracking was adjusted accordingly to reflect the structure of the new program. While financial assistance (obligations and payments to participants) can be differentiated by each easement and contract type, technical assistance is not differentiated by program component and is estimated for this paper (see also Appendix 4).

Table 2 also summarizes WRE funding from 2005 to 2020, however it displays the funding by State. Both Table 1 and Table 2 are program outlays and both tables exclude above-state expenses associated with managing the program, such as headquarters program administration costs. These costs average around 2 percent of the total funding.

Table 2 – Wetlands Reserve Easement Programs, State-Level Outlays for Total Financial and Technical Assistance Payments, Number of Perfected Agreements, Acres Enrolled, and Per Acre Enrolled Averages, 2005 to 2020 (Nominal Dollars)

State	Total Financial Assistance (\$)	Total Technical Assistance (\$)	Total Cost (\$)	Perfected Agreements		Average per Agreement		Average Cost per Acre (\$)		
				Count	Acres	Acres	Cost (\$)	Total	FA	TA
Alabama	59,806,447	5,932,907	65,739,354	190	25,529	134	345,997	2,575	2,343	232
Alaska	47,342	308,488	355,830	1	16	16	355,830	22,664	3,015	19,649
Arizona	34,470	924,555	959,025	0	0					
Arkansas	197,126,034	36,927,807	234,053,841	313	95,374	305	747,776	2,454	2,067	387
California	200,543,082	31,277,933	231,821,015	141	56,267	399	1,644,121	4,120	3,564	556
Colorado	14,880,607	4,738,356	19,618,962	33	8,327	252	594,514	2,356	1,787	569
Connecticut	959,327	1,156,764	2,116,091	3	156	52	705,364	13,546	6,141	7,405
Delaware	9,095,386	1,742,728	10,838,114	39	2,463	63	277,900	4,401	3,693	708
Florida	654,918,466	51,140,528	706,058,994	116	145,124	1251	6,086,715	4,865	4,513	352
Georgia	71,267,986	8,160,929	79,428,915	111	44,001	396	715,576	1,805	1,620	185
Hawaii	786,322	778,456	1,564,779	0	0					
Idaho	11,457,656	2,518,005	13,975,660	22	4,172	190	635,257	3,350	2,746	604
Illinois	92,966,557	11,685,509	104,652,065	158	30,814	195	662,355	3,396	3,017	379
Indiana	106,800,263	14,697,857	121,498,120	459	30,163	66	264,702	4,028	3,541	487
Iowa	202,359,298	24,430,770	226,790,068	387	38,862	100	586,021	5,836	5,207	629
Kansas	36,449,677	5,577,295	42,026,972	167	17,437	104	251,659	2,410	2,090	320
Kentucky	97,142,170	13,482,042	110,624,213	206	26,817	130	537,011	4,125	3,622	503
Louisiana	236,716,972	32,572,836	269,289,808	544	125,473	231	495,018	2,146	1,887	260
Maine	602,949	481,046	1,083,995	5	308	62	216,799	3,525	1,960	1,564
Maryland	35,430,935	4,063,662	39,494,597	96	11,533	120	411,402	3,425	3,072	352
Massachusetts	19,852,040	1,940,798	21,792,839	25	1,580	63	871,714	13,794	12,565	1,228
Michigan	47,600,924	9,088,840	56,689,764	169	11,453	68	335,442	4,950	4,156	794
Minnesota	155,049,417	30,791,565	185,840,982	531	64,773	122	349,983	2,869	2,394	475
Mississippi	130,768,816	22,237,083	153,005,899	244	49,032	201	627,073	3,121	2,667	454
Missouri	150,417,142	25,434,704	175,851,846	359	44,048	123	489,838	3,992	3,415	577
Montana	19,119,924	7,275,363	26,395,287	40	12,558	314	659,882	2,102	1,523	579
Nebraska	115,863,996	16,876,236	132,740,232	424	53,799	127	313,067	2,467	2,154	314
Nevada	18,442,206	1,829,594	20,271,800	10	10,841	1084	2,027,180	1,870	1,701	169
New Hampshire	65,251,503	4,789,154	70,040,657	168	17,382	103	416,909	4,029	3,754	276
New Jersey	16,221,806	2,026,893	18,248,699	35	2,806	80	521,391	6,503	5,781	722
New Mexico	3,696,156	647,061	4,343,217	5	822	164	868,643	5,282	4,495	787
New York	41,277,077	14,353,317	55,630,394	391	17,597	45	142,277	3,161	2,346	816
North Carolina	76,045,004	14,376,948	90,421,952	53	25,986	490	1,706,075	3,480	2,926	553
North Dakota	115,875,114	17,222,911	133,098,024	666	114,594	172	199,847	1,161	1,011	150
Ohio	49,389,658	9,719,178	59,108,837	185	12,633	68	319,507	4,679	3,910	769
Oklahoma	49,641,919	9,833,287	59,475,207	103	18,166	176	577,429	3,274	2,733	541
Oregon	85,439,679	15,995,707	101,435,386	49	32,314	659	2,070,110	3,139	2,644	495
Pennsylvania	35,272,591	4,416,948	39,689,539	144	6,942	48	275,622	5,718	5,081	636
Rhode Island	1,250,967	665,760	1,916,727	5	130	26	383,345	14,729	9,613	5,116
South Carolina	57,103,996	7,833,051	64,937,048	81	34,528	426	801,692	1,881	1,654	227
South Dakota	110,926,225	19,065,433	129,991,658	504	55,499	110	257,920	2,342	1,999	344
Tennessee	100,806,382	15,140,425	115,946,807	236	32,988	140	491,300	3,515	3,056	459
Texas	82,378,884	22,810,761	105,189,644	87	41,478	477	1,209,076	2,536	1,986	550
Utah	2,788,508	1,531,790	4,320,298	22	2,131	97	196,377	2,028	1,309	719
Vermont	8,684,583	1,732,050	10,416,633	42	3,395	81	248,015	3,068	2,558	510
Virginia	7,041,980	1,615,042	8,657,022	28	1,518	54	309,179	5,704	4,640	1,064
Washington	19,881,411	5,636,433	25,517,843	34	2,613	77	750,525	9,768	7,610	2,157
West Virginia	904,988	1,491,427	2,396,415	7	64	9	342,345	37,183	14,042	23,141
Wisconsin	87,683,310	11,707,747	99,391,057	235	22,809	97	422,941	4,358	3,844	513
Wyoming	5,161,827	3,223,359	8,385,186	9	2,506	278	931,687	3,346	2,060	1,286
Total	3,709,229,979	553,907,339	4,263,137,318	7,882	1,359,820	173	540,870	3,135	2,728	407

Source: NRCS, FOIA Request 2022-NRCS-05290-F, October 2022.

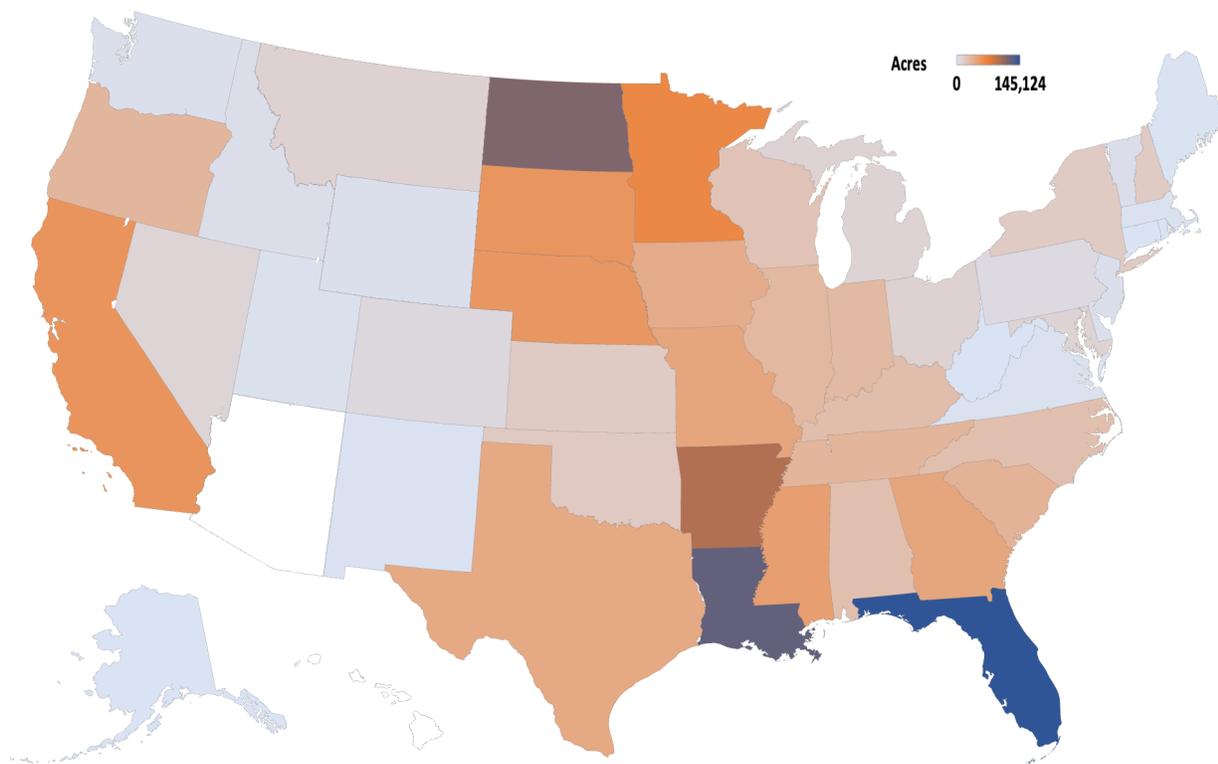
Excluding states that had less than 25 easements perfected from 2005 to 2020, average WRE financial and technical assistance costs ranged from \$1,161 per acre in North Dakota to over \$13,794 per acre in Massachusetts.

Again, caution should be used when viewing average costs per agreement or average costs per acre for all states (especially states that have few WRE agreements over the 16-year period displayed in Table 2). First, it is possible for a state to incur WRE costs prior to perfecting an easement because of the length of the acquisition process and the length of the wetland restoration assistance process. Second, it is possible for a state to incur restoration costs for easements perfected before 2005 and it might appear that expenditures are taking place without a perfected easement.

Annual cost figures are also affected by the proportion of funds allocated to acquisition and restoration, which vary annually. For example, because of a significant backlog in restoration work that needed to be completed on land from easements closed in prior years, beginning in 2012 NRCS emphasized funding for restoration of prior-year easements. This may be particularly relevant for data from fiscal years 2014 and beyond when NRCS received an additional apportionment from the Office of Management and Budget of nearly \$700 million from unused prior year WRP funds to be used only for restoration of prior year agreements.

Figure 2 displays the total acreage of agricultural land enrolled in WRE from 2005 through 2020. From 2005 through 2020, WRE enrolled about 1.36 million acres in easements and contracts, with three states (Florida, North Dakota, and Louisiana) accounting for 28 percent of the acres. The top ten WRE states, in terms of acres enrolled, accounted for 59 percent of the new WRE acreage from 2005 to 2020 (Figure 2).

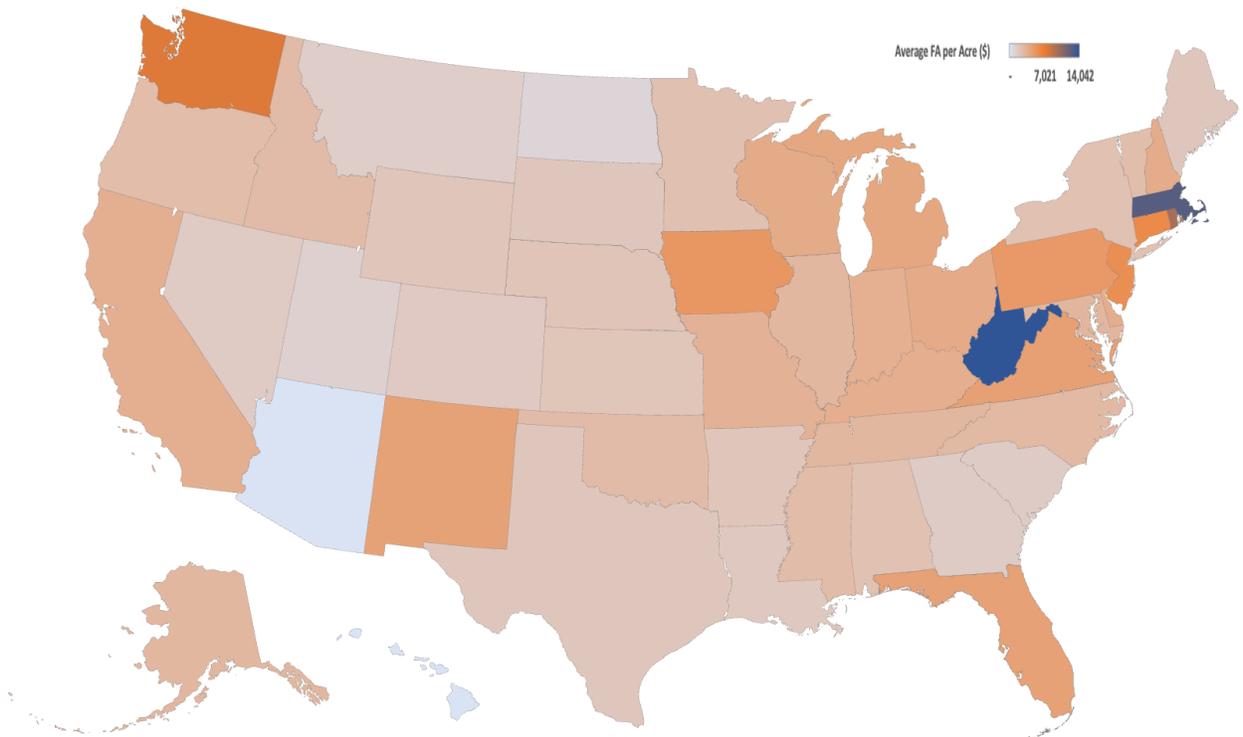
Figure 2 – Total WRE Acreage Acquired From 2005 Through 2020
(See Table 2 for Data)



The net effect of program changes and program implementation lags is to make it especially difficult to compare average per acre costs across years for states that enroll a limited number of WRE easements. Nevertheless, it is possible to make estimates of average easement and restoration costs if the averages include several years of data that help to smooth out the annual variations in acquisition and restoration ratios.

Figure 3 displays the average financial assistance cost for easement acquisition and restoration for the period from 2005 to 2020. The WRE financial assistance costs per acre tend to be closely related to land values since the WRE Geographic Area Rate Caps use land values as their foundation, and the acquisition costs make up the bulk of financial assistance.

Figure 3 – WRE Financial Assistance (Easement) Costs, 2005 Through 2020, Dollars per Acre (See Table 2 for Data)



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3. USDA COMMODITY, CROP INSURANCE, AND DISASTER ASSISTANCE PROGRAMS

3.1. INTRODUCTION

Commodity, crop insurance, and disaster assistance programs are the key elements of the USDA “safety net” that helps producers manage risk inherent to agricultural operations. The risks¹² agricultural producers face include:

- *Production risk* that is related to the uncertain natural growth processes of crops and livestock. Weather, disease, pests, and other factors affect both the quantity and quality of commodities produced.
- *Price or market risk* refers to uncertainty about the prices producers will receive for commodities or the prices they must pay for inputs. The nature of price risk varies significantly from commodity to commodity.
- *Financial risk* derives from farms and ranches needing to borrow money to produce output. Rising interest rates, the prospect of loans being called by lenders, and restricted credit availability are also aspects of financial risk.
- *Institutional risk* is created by uncertainties surrounding domestic and foreign government actions. Examples include changes in tax laws, new regulations for chemical use, requirements for animal waste disposal, trade agreements, military conflicts, and the level of price or income support program payments.
- *Human or personal risk* is associated with factors such as problems with health or personal relationships that can affect the farm business. Accidents, illness, death, and divorce are examples of personal crises that can threaten a farm business.

3.2. COMMODITY PROGRAMS

3.2.1. OVERVIEW OF COMMODITY PROGRAMS

Farm commodity programs are administered by the United States Department of Agriculture (USDA) Farm Service Agency (FSA), with funds from the Commodity Credit Corporation (CCC). The programs are authorized by several underlying statutes (i.e., Agricultural Adjustment Act of 1938, the Agricultural Act of 1949, and the Commodity Credit Corporation Charter Act of 1948) that are periodically modified through the Farm Bill. Commodity price support programs have evolved over time from supply control programs supporting prices to more market-oriented programs with increased planting flexibility. Title I commodity programs have undergone many adjustments to assist producers manage risk and to minimize the need for expensive emergency support legislation.

The 2014 Agricultural Act followed the evolution of commodity programs by replacing the 2008 Farm Bill’s Direct Payment (DP) and Counter Cyclical Payment (CCP) programs with Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC), while maintaining the Marketing Assistance Loan (MAL) program and commodity specific programs. The data presented in this section include the current programs, as well as their predecessors. The following discusses

¹² <https://www.ers.usda.gov/topics/farm-practices-management/risk-management/risk-in-agriculture>

the current primary commodity programs while Appendix 1 provides a more detailed discussion of commodity programs.

Title I of the 2018 Farm Bill made marginal changes to the authorities established in the 2014 Farm Bill. Producers continue to be able to participate in either ARC or PLC, but the 2018 Farm Bill allows them to change their program elections annually beginning in crop year 2021. In addition, Price Loss Coverage and Agriculture Risk Coverage payment formulas now use an effective reference price which accounts for movements in the market price of the covered commodity. The effective reference price can now rise to 15 percent above the price floors (i.e., reference prices) established in the 2014 Farm Act. Finally, ARC benchmark revenue formulas now reflect historical yield trends. “Plug yields” (sometimes referred to as “substitute” yields) are used to mitigate the effects of low-yielding years on the benchmark yield and the 2018 Farm Bill increased them from 70 to 80 percent of average yields.

3.2.2. COMMODITY PROGRAM DATA

As the information displayed in Table 3 and Figure 4 indicates, commodity program crops are primarily located in the Great Plains, Corn Belt, and Great Lake States. The average “planted acreage from 2005 to 2020 was 241.9 million acres. An additional 3.1 million acres had crops that were declared a failure and 5.7 million acres were classified by FSA as “prevented plant.”

**Table 3 – Commodity Crops: Planted, Failed, and Prevent Plant Acres,
Average by State, 2005 to 2020**

State	Planted	Failed	Planted or Failed	Prevented Plant
	(Acres)			
Alabama	1,132,863	1,767	1,134,631	23,703
Alaska	5,697	0	5,697	235
Arizona	393,594	523	394,117	18,232
Arkansas	6,121,392	52,788	6,174,180	448,920
California	2,095,799	2,421	2,098,220	54,303
Colorado	3,686,004	192,097	3,878,101	97,489
Connecticut	25,846	39	25,885	85
Delaware	419,649	487	420,137	1,495
Florida	527,838	360	528,199	1,315
Georgia	2,142,706	1,455	2,144,161	21,209
Hawaii	11,664	3	11,667	0
Idaho	2,278,176	20,656	2,298,832	22,804
Illinois	21,807,339	63,420	21,870,759	310,629
Indiana	11,363,728	24,025	11,387,753	140,544
Iowa	22,929,905	17,414	22,947,319	133,355
Kansas	19,766,378	124,944	19,891,323	136,504
Kentucky	3,374,311	11,117	3,385,428	56,835
Louisiana	2,942,316	19,675	2,961,991	146,833
Maine	73,130	22	73,151	179
Maryland	1,174,730	1,240	1,175,970	3,738
Massachusetts	18,599	24	18,623	151
Michigan	4,951,204	13,555	4,964,760	96,707
Minnesota	17,309,403	5,604	17,315,007	258,193
Mississippi	3,529,292	20,829	3,550,121	209,361
Missouri	9,700,444	82,127	9,782,571	428,064
Montana	6,227,492	60,628	6,288,120	119,213
Nebraska	16,140,352	76,209	16,216,562	65,730
Nevada	22,109	10	22,119	3,446
New Hampshire	13,305	4	13,309	29
New Jersey	337,352	2,970	340,322	3,135
New Mexico	945,533	5,845	951,378	16,644
New York	997,966	809	998,775	39,355
North Carolina	3,569,545	8,480	3,578,025	98,651
North Dakota	16,449,139	11,487	16,460,627	1,199,313
Ohio	8,637,507	15,834	8,653,341	164,629
Oklahoma	6,727,882	54,707	6,782,588	71,276
Oregon	943,980	1,642	945,622	3,342
Pennsylvania	1,567,119	470	1,567,589	8,600
Rhode Island	1,580	1	1,581	7
South Carolina	1,120,384	1,145	1,121,529	59,080
South Dakota	12,306,106	171,756	12,477,862	800,853
Tennessee	2,899,796	18,220	2,918,016	87,625
Texas	14,542,506	1,975,009	16,517,515	266,456
Utah	226,376	1,704	228,080	638
Vermont	87,445	50	87,495	2,296
Virginia	1,301,013	979	1,301,992	10,327
Washington	2,531,238	4,604	2,535,842	7,927
West Virginia	74,750	61	74,811	303
Wisconsin	6,099,480	10,361	6,109,841	94,610
Wyoming	350,462	3,803	354,264	2,672
National Average	241,902,428	3,083,382	244,985,809	5,737,036

Notes: (a) Eleven crops are reported in the national estimates of Planted, Failed, and Prevent Plant: Barley, Corn, Cotton-ELS, Cotton Upland, Oats, Rice, Sorghum, Soybeans, Sugar Beets, Sugarcane, and Wheat
(b) Shading indicates State is in the top 10 for the category

Figure 4 provides an overview of the distribution of average annual Planted and Failed acres from 2005 to 2020. Commodity program acres are concentrated in the Great Plains and Midwest.

**Figure 4 – Average Annual Planted and Failed Acres, by State, 2005-2020, 1,000's of Acres
(See Table 3 for Data)**

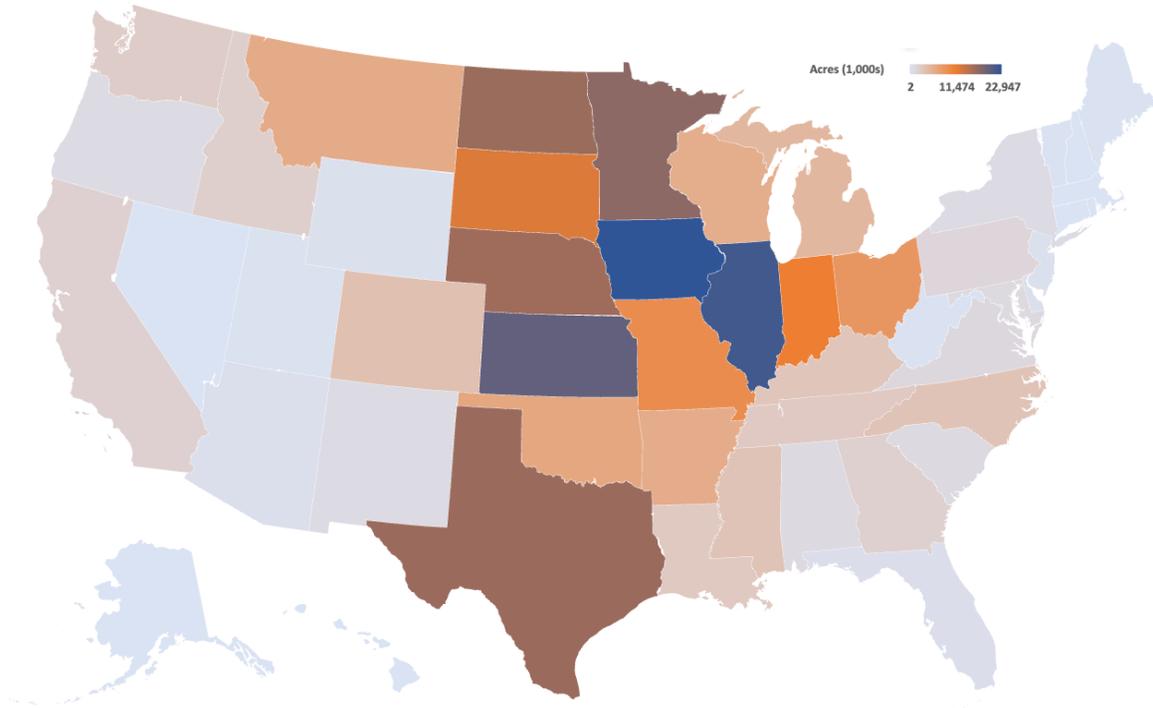


Figure 5 displays the average annual Prevented Plant acres for the period from 2005 to 2020. During this time, North and South Dakota accounted for about 36 percent of the total Prevented Plant acres in the US.

**Figure 5 – Average Annual Prevent Plant Acres, by State, 2005-2020
(See Table 3 for Data)**

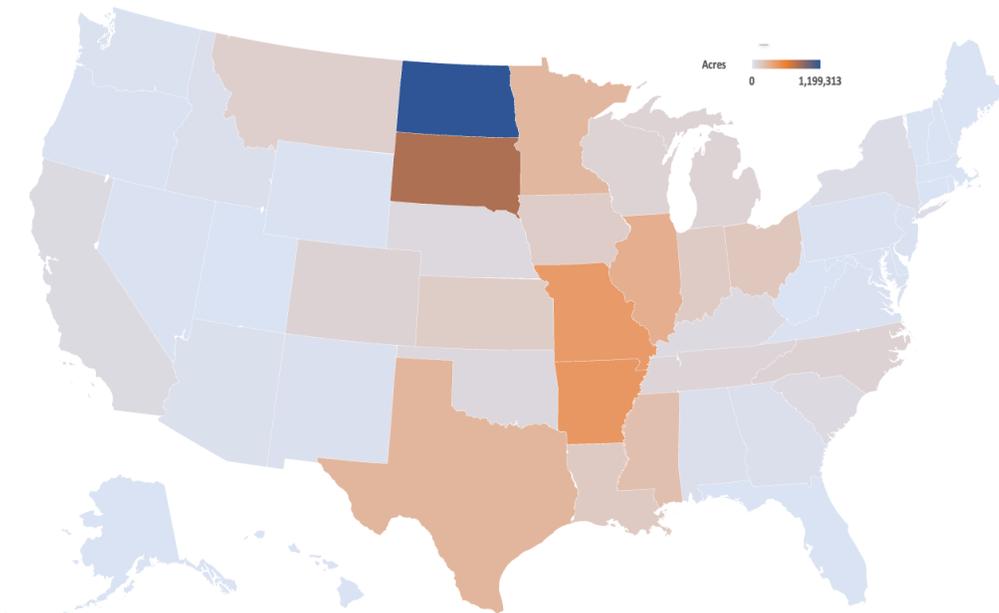


Table 4 presents a summary of state-level commodity program payments in nominal dollars over the period from 2005 to 2020 in terms of total, average annual, and average annual per planted and failed acre, for each state .

Table 4 – Total, Average Annual, and Average Annual per Acre Commodity Program Payments, by State, 2005 to 2020 (Nominal Dollars)

State	Commodity Program Payments*		
	Total	Annual Average	Annual Average per Avg. Planted Acre
Alabama	\$1,482,651,000	\$92,665,688	\$82
Alaska	\$1,968,000	\$123,000	\$22
Arizona	\$748,792,000	\$46,799,500	\$119
Arkansas	\$5,933,613,000	\$370,850,813	\$60
California	\$3,347,792,000	\$209,237,000	\$100
Colorado	\$1,475,834,000	\$92,239,625	\$24
Connecticut	\$12,179,000	\$761,188	\$29
Delaware	\$129,676,000	\$8,104,750	\$19
Florida	\$514,150,000	\$32,134,375	\$61
Georgia	\$4,404,646,000	\$275,290,375	\$128
Hawaii	\$1,262,000	\$78,875	\$7
Idaho	\$1,051,672,000	\$65,729,500	\$29
Illinois	\$10,080,116,000	\$630,007,250	\$29
Indiana	\$5,407,276,000	\$337,954,750	\$30
Iowa	\$11,035,102,000	\$689,693,875	\$30
Kansas	\$7,147,680,000	\$446,730,000	\$22
Kentucky	\$3,648,959,000	\$228,059,938	\$67
Louisiana	\$2,796,660,000	\$174,791,250	\$59
Maine	\$22,025,000	\$1,376,563	\$19
Maryland	\$380,960,000	\$23,810,000	\$20
Massachusetts	\$16,341,000	\$1,021,313	\$55
Michigan	\$2,128,014,000	\$133,000,875	\$27
Minnesota	\$7,304,984,000	\$456,561,500	\$26
Mississippi	\$4,314,061,000	\$269,628,813	\$76
Missouri	\$4,516,900,000	\$282,306,250	\$29
Montana	\$1,965,515,000	\$122,844,688	\$20
Nebraska	\$8,112,541,000	\$507,033,813	\$31
Nevada	\$15,740,000	\$983,750	\$44
New Hampshire	\$7,501,000	\$468,813	\$35
New Jersey	\$62,057,000	\$3,878,563	\$11
New Mexico	\$389,112,000	\$24,319,500	\$26
New York	\$608,530,000	\$38,033,125	\$38
North Carolina	\$5,696,364,000	\$356,022,750	\$100
North Dakota	\$5,501,111,000	\$343,819,438	\$21
Ohio	\$4,157,388,000	\$259,836,750	\$30
Oklahoma	\$2,476,417,000	\$154,776,063	\$23
Oregon	\$482,163,000	\$30,135,188	\$32
Pennsylvania	\$535,164,000	\$33,447,750	\$21
Rhode Island	\$585,000	\$36,563	\$23
South Carolina	\$1,447,626,000	\$90,476,625	\$81
South Dakota	\$4,144,891,000	\$259,055,688	\$21
Tennessee	\$2,470,982,000	\$154,436,375	\$53
Texas	\$12,162,064,000	\$760,129,000	\$46
Utah	\$118,405,000	\$7,400,313	\$32
Vermont	\$46,355,000	\$2,897,188	\$33
Virginia	\$1,270,547,000	\$79,409,188	\$61
Washington	\$1,341,688,000	\$83,855,500	\$33
West Virginia	\$54,789,000	\$3,424,313	\$46
Wisconsin	\$2,600,878,000	\$162,554,875	\$27
Wyoming	\$125,025,000	\$7,814,063	\$22
Grand Total	\$133,696,751,000	\$8,356,046,938	\$34

Highlighted cells are the top ten in the category.

* Excludes Biomass Crop Assistance, Conservation, Dairy Margin Coverage, Milk Income Loss, and Supplemental and Ad Hoc Disaster Assistance Programs

The "other supplemental and ad hoc disaster assistance" line item includes payments from the Wildfire and Hurricane Indemnity Program (WHIP Plus), Quality Loss Adjustment (QLA) Program, and other farm bill designated disaster programs."

SOURCES: Payment data are from ERS Farm Income and Wealth Statistics data averaged for the period 2005 - 2020 at: <https://data.ers.usda.gov/reports.aspx?ID=17833>

Acreage data are from the Farm Service Agency (FSA) Crop Acreage Data averaged for the period 2005 - 2020 at:

<https://www.fsa.usda.gov/news-room/foia/electronic-reading-room/frequently-requested-information/crop-acreage-data/index>

Commodity payments totaled nearly \$133.7 billion from 2005 through 2020 and averaged about \$8.4 billion per year. Average annual commodity payments were concentrated in the Great Plains and the Midwest with five states (Illinois, Iowa, Texas, Nebraska, and Minnesota) receiving 41 percent of the US average annual commodity payments (see Figure 6).

Figure 6 – Average Annual Commodity Payments by State, 2005 – 2020 (Nominal Dollars)
(See Table 4 for Data)

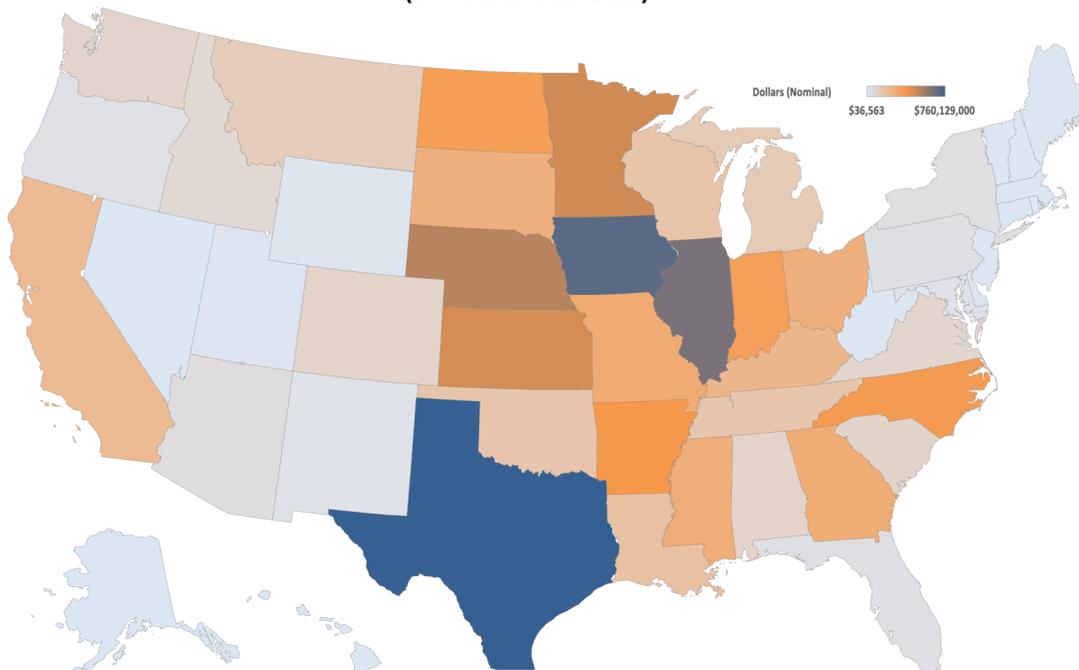


Figure 7 displays average annual commodity payments per acre. Note that the higher payments per acre, unlike total payments, shift away from the Great Plains and Midwest.

Figure 7 – Average Annual Commodity Payments per Acre, by State, 2005 – 2020 (Nominal Dollars)
(See Table 4 for Data)

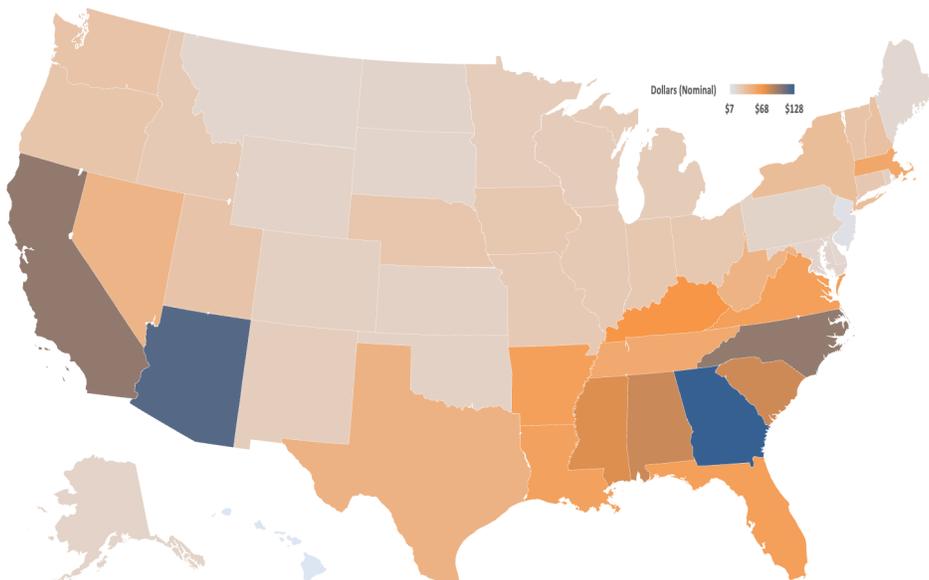


Table 5 displays total average annual commodity program payments by state over 5 time periods: 2005-2009, 2010-2014, 2015-2019, 2005-2015, and 2005-2020. The highest average commodity payments occurred during the 2005-2009 period and averaged \$15.5 billion per year. The period from 2010-2014 saw a dramatic decline in commodity payments and the payments were only 40 percent of the payments during 2005-2009 period. However, payments nearly double from the 2009-2014 period to the 2015-2019 period, underscoring the volatility in the sector and commodity payments. This analysis uses the 2005-2020 period to minimize the volatility inherent in commodity program payments.

**Table 5 – Average Annual Commodity Payments, by State, by 5 Time Periods
(Nominal Dollars)**

State	2005-2009	2010-2014	2015-2019	2005-2015	2005-2020
Alabama	\$138,180,600	\$39,096,600	\$94,506,000	\$85,142,818	\$92,665,688
Alaska	\$126,000	\$149,400	\$89,800	\$125,182	\$123,000
Arizona	\$85,422,200	\$29,369,800	\$24,268,000	\$52,703,182	\$46,799,500
Arkansas	\$428,303,000	\$194,564,800	\$473,103,000	\$303,069,000	\$370,850,813
California	\$389,286,400	\$113,281,200	\$107,074,400	\$231,372,545	\$209,237,000
Colorado	\$103,433,400	\$57,050,600	\$110,421,400	\$77,095,273	\$92,239,625
Connecticut	\$1,237,800	\$425,000	\$696,400	\$811,091	\$761,188
Delaware	\$9,307,200	\$4,085,000	\$10,617,000	\$6,085,455	\$8,104,750
Florida	\$44,732,600	\$16,254,600	\$32,903,800	\$29,970,091	\$32,134,375
Georgia	\$378,314,600	\$134,629,400	\$296,672,800	\$252,579,364	\$275,290,375
Hawaii	\$400	\$176,800	\$55,400	\$80,545	\$78,875
Idaho	\$66,282,200	\$45,097,200	\$76,409,000	\$51,649,545	\$65,729,500
Illinois	\$758,189,400	\$338,845,200	\$765,487,600	\$519,607,273	\$630,007,250
Indiana	\$395,817,000	\$172,996,400	\$433,735,800	\$272,046,545	\$337,954,750
Iowa	\$875,901,600	\$378,325,800	\$814,538,000	\$651,784,818	\$689,693,875
Kansas	\$437,390,800	\$250,691,400	\$597,496,000	\$339,283,818	\$446,730,000
Kentucky	\$395,952,800	\$199,185,000	\$112,286,400	\$275,068,727	\$228,059,938
Louisiana	\$233,155,000	\$97,142,600	\$188,656,600	\$157,948,909	\$174,791,250
Maine	\$1,647,800	\$593,000	\$2,035,400	\$1,149,182	\$1,376,563
Maryland	\$27,798,600	\$12,196,400	\$30,177,600	\$18,356,455	\$23,810,000
Massachusetts	\$850,000	\$320,200	\$1,614,400	\$606,182	\$1,021,313
Michigan	\$145,216,000	\$62,642,200	\$186,567,800	\$107,624,727	\$133,000,875
Minnesota	\$517,276,800	\$235,304,000	\$579,613,600	\$402,956,545	\$456,561,500
Mississippi	\$492,684,800	\$106,532,600	\$209,302,200	\$277,466,273	\$269,628,813
Missouri	\$334,844,800	\$145,518,000	\$351,945,400	\$221,719,909	\$282,306,250
Montana	\$117,144,200	\$84,335,600	\$152,523,600	\$92,313,000	\$122,844,688
Nebraska	\$570,514,200	\$269,704,800	\$683,640,800	\$436,885,727	\$507,033,813
Nevada	\$837,800	\$527,000	\$1,407,200	\$626,455	\$983,750
New Hampshire	\$682,000	\$219,200	\$547,000	\$460,545	\$468,813
New Jersey	\$4,302,600	\$1,927,200	\$5,310,000	\$2,934,636	\$3,878,563
New Mexico	\$30,457,800	\$13,225,200	\$26,825,200	\$20,413,182	\$24,319,500
New York	\$46,837,800	\$19,042,600	\$49,443,000	\$33,910,364	\$38,033,125
North Carolina	\$622,684,400	\$346,965,200	\$134,152,600	\$445,570,000	\$356,022,750
North Dakota	\$290,916,200	\$195,260,000	\$488,364,000	\$238,111,909	\$343,819,438
Ohio	\$275,027,800	\$128,216,400	\$370,415,600	\$204,518,364	\$259,836,750
Oklahoma	\$165,477,800	\$116,982,000	\$164,429,200	\$134,982,455	\$154,776,063
Oregon	\$29,228,200	\$22,527,400	\$33,534,800	\$25,277,182	\$30,135,188
Pennsylvania	\$43,002,800	\$16,552,200	\$41,557,400	\$28,392,545	\$33,447,750
Rhode Island	\$48,800	\$10,800	\$48,800	\$30,182	\$36,563
South Carolina	\$146,699,400	\$76,627,200	\$51,832,600	\$104,792,636	\$90,476,625
South Dakota	\$254,949,000	\$124,360,800	\$369,906,800	\$194,337,000	\$259,055,688
Tennessee	\$275,927,000	\$87,079,200	\$100,792,600	\$166,092,000	\$154,436,375
Texas	\$1,150,028,400	\$358,539,200	\$726,349,600	\$711,018,818	\$760,129,000
Utah	\$7,614,200	\$4,516,600	\$9,543,600	\$5,756,636	\$7,400,313
Vermont	\$3,960,400	\$1,482,200	\$3,340,000	\$2,726,455	\$2,897,188
Virginia	\$120,919,200	\$69,149,000	\$52,959,800	\$88,919,455	\$79,409,188
Washington	\$74,464,200	\$63,409,600	\$94,144,200	\$70,405,727	\$83,855,500
West Virginia	\$5,659,400	\$2,654,200	\$2,302,200	\$3,885,091	\$3,424,313
Wisconsin	\$205,268,400	\$86,806,200	\$195,361,400	\$152,971,636	\$162,554,875
Wyoming	\$9,852,200	\$5,133,400	\$8,128,600	\$6,987,455	\$7,814,063
National	\$10,713,856,000	\$4,729,726,400	\$9,267,134,400	\$7,508,622,909	\$8,356,046,938

3.3. SUPPLEMENTAL AND AD HOC DISASTER ASSISTANCE PROGRAMS

3.3.1. OVERVIEW OF DISASTER ASSISTANCE PROGRAMS

The U.S. Department of Agriculture offers several programs that help farmers and ranchers affected by natural disasters. Supplemental and ad hoc disaster assistance includes payments from the Wildfire and Hurricane Indemnity Program (WHIP Plus), Emergency Relief Program (ERP), Quality Loss Adjustment (QLA) Program, and other Farm Bill designated disaster assistance programs.

Supplemental and ad hoc disaster assistance in 2020 includes assistance from COVID-19 pandemic assistance programs and other ad hoc and emergency programs that make direct payments to producers. USDA pandemic assistance includes payments from the Coronavirus Food Assistance Programs (CFAP) and other pandemic assistance to producers, while non-USDA pandemic assistance includes represents loans from the Small Business Administration's Paycheck Protection Program (PPP).

3.3.2. DISASTER ASSISTANCE PROGRAM FUNDING

Supplemental and ad hoc disaster assistance payments totaled \$55.4 billion and averaged \$3.5 billion per year from 2005 to 2020. Table 6, Figure 8, and Figure 9 summarize total and per acre supplemental and ad hoc disaster payments for each state from 2005 to 2020.

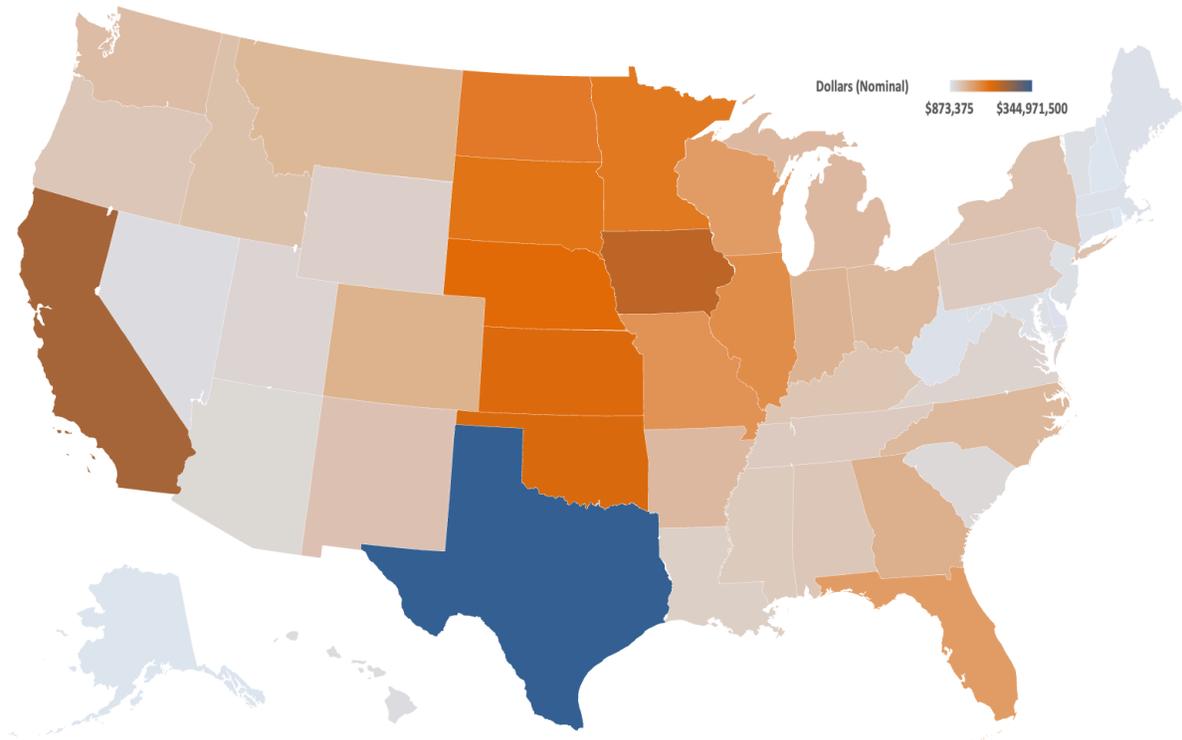
The ten states with the highest average annual supplemental and ad hoc disaster assistance payments over the period from 2005 to 2020 are highlighted in Table 6. These states accounted for about 55% of the total average annual payments: Texas, California, Iowa, Oklahoma, Kansas, Nebraska, South Dakota, Minnesota, North Dakota, and Illinois. The states with the highest average payments per acre are also highlighted in table 6 and include: Hawaii, Rhode Island, Nevada, Massachusetts, Alaska, Florida, Connecticut, New Hampshire, California, Utah, and Vermont (tied at \$99 per acre).

Table 6 – Total, Average Annual, and Average Annual per Acre Payments for Supplemental & Ad Hoc Disaster Assistance Programs, by State, 2005 to 2020 (Nominal Dollars)

State	Supplemental and Ad Hoc Disaster Assistance Program Payments**		
	Total	Annual Average	Annual Average per Avg. Planted or Failed Acre
Alabama	\$676,190,000	\$42,261,875	\$37
Alaska	\$26,426,000	\$1,651,625	\$290
Arizona	\$339,472,000	\$21,217,000	\$54
Arkansas	\$990,246,000	\$61,890,375	\$10
California	\$3,745,024,000	\$234,064,000	\$112
Colorado	\$1,166,344,000	\$72,896,500	\$19
Connecticut	\$77,266,000	\$4,829,125	\$187
Delaware	\$50,158,000	\$3,134,875	\$7
Florida	\$1,690,559,000	\$105,659,938	\$200
Georgia	\$1,216,447,000	\$76,027,938	\$35
Hawaii	\$183,564,000	\$11,472,750	\$983
Idaho	\$848,860,000	\$53,053,750	\$23
Illinois	\$1,996,935,000	\$124,808,438	\$6
Indiana	\$1,146,393,000	\$71,649,563	\$6
Iowa	\$3,359,629,000	\$209,976,813	\$9
Kansas	\$2,872,259,000	\$179,516,188	\$9
Kentucky	\$745,958,000	\$46,622,375	\$14
Louisiana	\$537,391,000	\$33,586,938	\$11
Maine	\$109,555,000	\$6,847,188	\$94
Maryland	\$155,638,000	\$9,727,375	\$8
Massachusetts	\$116,386,000	\$7,274,125	\$391
Michigan	\$979,050,000	\$61,190,625	\$12
Minnesota	\$2,451,082,000	\$153,192,625	\$9
Mississippi	\$618,563,000	\$38,660,188	\$11
Missouri	\$1,835,338,000	\$114,708,625	\$12
Montana	\$1,054,187,000	\$65,886,688	\$10
Nebraska	\$2,817,244,000	\$176,077,750	\$11
Nevada	\$182,777,000	\$11,423,563	\$516
New Hampshire	\$29,424,000	\$1,839,000	\$138
New Jersey	\$152,830,000	\$9,551,875	\$28
New Mexico	\$751,533,000	\$46,970,813	\$49
New York	\$780,437,000	\$48,777,313	\$49
North Carolina	\$1,018,014,000	\$63,625,875	\$18
North Dakota	\$2,379,355,000	\$148,709,688	\$9
Ohio	\$1,023,780,000	\$63,986,250	\$7
Oklahoma	\$2,950,633,000	\$184,414,563	\$27
Oregon	\$688,448,000	\$43,028,000	\$46
Pennsylvania	\$578,837,000	\$36,177,313	\$23
Rhode Island	\$13,974,000	\$873,375	\$552
South Carolina	\$310,080,000	\$19,380,000	\$17
South Dakota	\$2,590,451,000	\$161,903,188	\$13
Tennessee	\$579,079,000	\$36,192,438	\$12
Texas	\$5,519,544,000	\$344,971,500	\$21
Utah	\$360,051,000	\$22,503,188	\$99
Vermont	\$137,973,000	\$8,623,313	\$99
Virginia	\$422,574,000	\$26,410,875	\$20
Washington	\$920,467,000	\$57,529,188	\$23
West Virginia	\$72,320,000	\$4,520,000	\$60
Wisconsin	\$1,636,494,000	\$102,280,875	\$17
Wyoming	\$466,494,000	\$29,155,875	\$82
Grand Total	\$55,371,733,000	\$3,460,733,313	\$14

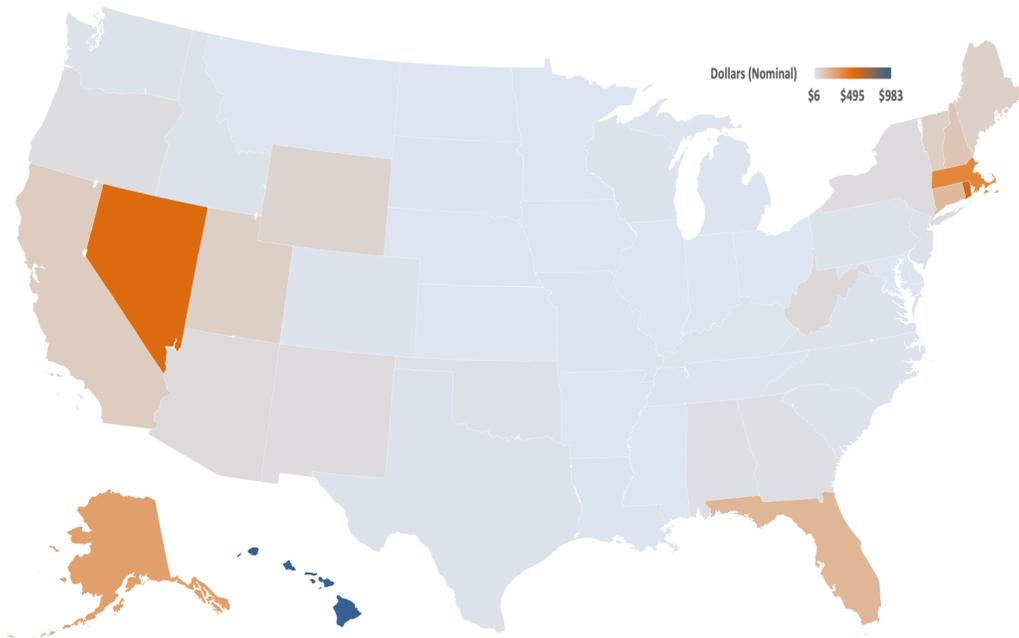
Much like the distribution of average annual commodity payments, disaster assistance payments are concentrated, as shown in Figure 8 in the Great Plains with a few exceptions.

Figure 8 – Average Annual Supplemental and Ad Hoc Disaster Assistance Payments, by State, 2005 – 2020, Nominal Dollars (See Table 6 for Data)



The per acre supplemental and ad hoc disaster assistance payments (planted plus failed acres) distribution pattern in Figure 9 is significantly different than the total payment distribution in Figure 8, with the higher per acre payments outside the Midwest.

Figure 9 – Annual Average Per Acre Supplemental and Ad Hoc Disaster Assistance Payments by State, 2005 – 2020, Nominal Dollars, (See Table 6 for Data)



Although disaster assistance payments can be substantial for a given year and area, unlike commodity program and crop insurance subsidies, outlays are episodic. As a result, the average annual outlays are much lower than outlays for commodity payments or crop insurance subsidies.

3.4. FEDERAL CROP INSURANCE PROGRAM

3.4.1. CROP INSURANCE PROGRAM OVERVIEW

The Federal Crop Insurance Program (FCIP) was created in 1938 to help agriculture recover from the combined effects of the Great Depression and the Dust Bowl. Initially an experiment, crop insurance policies focused on major crops in key production areas. Crop insurance remained an experiment until passage of the Federal Crop Insurance Act of 1980. The 2008 Farm Bill created a new title (Title XII) for Federal crop insurance which not only provided a vehicle to modify crop insurance policy it provided the Agricultural Authorizing Committees significant savings that were used to offset the cost of new spending in other parts of the bill.

The 2014 Farm Bill contained relatively few changes to the underlying structure of individual farm-level or field-level insurance policies. These changes included:

- Making it easier for a farmer to exclude a year with poor crop yields from the Actual Production History, which determines the farmer's target yield under the program.
- Requiring farmers participating in the crop insurance program to meet conservation compliance requirements.
- Making the enterprise unit subsidy permanent.

The 2018 Farm Bill's Crop Insurance Title was nearly budget neutral, with small increases and decreases across several provisions. Changes that were projected to increase budgetary outlays included authorizing Catastrophic Risk Protection (CAT) coverage for grazing crops and grasses; allowing separate coverage for crops that are grazed and mechanically harvested in the same season; redefining the term beginning farmer or rancher for whole-farm revenue protection policies; and waiving certain requirements for hemp coverage proposals submitted by the private sector. Changes that were projected to reduce budgetary outlays included increasing the administrative fee for CAT coverage; authorizing multicounty enterprise units; reducing funds for certain research and development contracts and partnerships; reducing funds for review, compliance, and program integrity; as well as changes in how producer benefits are reduced when planting on native sod.

The 2018 farm bill also amended the rules for cover crop termination; expanded the definition of underserved producers; and directed USDA to conduct research for developing FCIP coverage for priority items, among other changes. In response to research priorities identified in the 2018 farm bill, USDA updated Whole Farm Revenue Protection policies and introduced coverage for hurricanes, quality losses, water conservation practices for irrigated rice production, and micro farms.

Since 2018, USDA has used administrative authorities to make additional changes to FCIP. Using the FCIP's authority to adopt coverage developed by the private sector (7 U.S.C.

§1508(h)), USDA introduced the Enhanced Coverage Option (ECO)—an area-based insurance policy that covers a portion of a farmer’s deductible not otherwise insurable with FCIP coverage—and the Post-Application Coverage Endorsement (PACE) for farmers who apply certain fertilizers in both the fall and spring. In addition, USDA used administrative authorities to make changes to grazing rules on land that was prevented from planting during the crop season due to adverse weather and to increase premium subsidies available for certain livestock policies. Prior to 2018, the Agricultural Risk Protection Act of 2000 (P.L. 106-224, §132) limited the funds available for premium subsidies for livestock. Section 60101(c) of the Bipartisan Budget Act of 2018 (P.L. 115-123) removed this limitation.

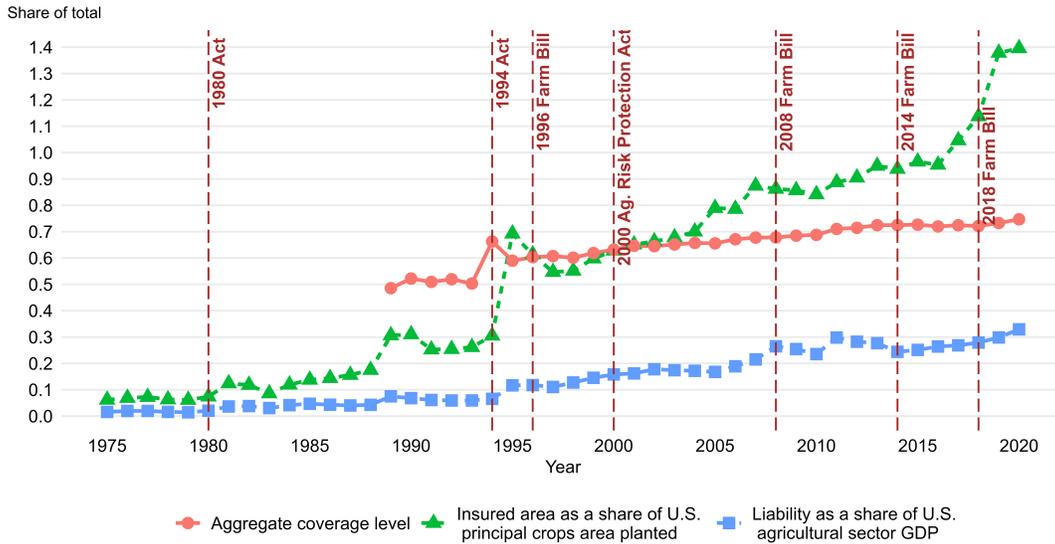
USDA also made other changes to the FCIP in response to provisions from annual and supplemental appropriations acts. USDA used funds provided by the Additional Supplemental Appropriations for Disaster Relief Act, 2019 (P.L. 116-20) to provide additional payments to insured acres that were prevented from being planted in 2019. USDA used funds appropriated by Congress in the Consolidated Appropriations Act, 2021 (P.L. 116-260) to create the Pandemic Cover Crop Program (PCCP). The PCCP provided up to \$5 per acre in additional premium subsidies to farmers who planted cover crops in 2021 and 2022.

By statute, the crop insurance program is supposed to achieve long-term actuarial soundness; which means that total premiums (farmer paid premiums plus federal subsidies to crop insurance companies) should equal total expected indemnities. However, total premiums will not equal total actual indemnities in any given year due to variability in weather and prices but over the long-term total premiums should equal total indemnities.

Federal costs associated with the crop insurance program include the costs of premium subsidies, USDA administrative and operating costs, and compensation to the insurance companies for selling and servicing crop insurance policies. Note that the only Federally funded direct benefit to the farmer is the premium subsidy.

Figure 10 summarizes participation in the Federal Crop Insurance Program with three metrics. The first metric is aggregate coverage level which is the total annual FCIP insured liability divided by the potential liability. The second participation measure is the insured area as a share of the area of principal crops planted (see the figure 10 notes for a list of principal crops). The third metric is liability as a share of the agricultural sector Gross Domestic Product. The long-term trend for all three measures of participation is steady growth. The insured area as a share of the area of principal crops planted measure of participation seen steeper growth since 2016.

Figure 10 – US Federal Crop Insurance Program Participation, 1975-2020



GDP = gross domestic product.

Notes: The aggregate coverage level is calculated as total annual Federal Crop Insurance Program (FCIP) insured liability divided by potential liability. U.S. agricultural sector Gross Domestic Product is recorded on a calendar year basis, while Federal Crop Insurance outcomes are on a crop year basis. Insured area includes all crops. Since 1975, principal crops area planted includes corn, sorghum, oats, barley, durum wheat, other spring wheat, rice, soybeans, flaxseed, peanuts, cotton, dry beans, potatoes, sweet potatoes, sugarbeets, winter wheat, rye, hay, tobacco, sugarcane, and sunflower seed. Public Law (PL) numbers for each piece of referenced legislation are as follows: 1980 Act (PL 96-365), 1994 Act (PL 103-354), 1996 Farm Bill (PL 104-127), 2000 Agricultural Risk Protection Act (PL 106-224), 2008 Farm Bill (PL 110-246), 2014 Farm Bill (PL 113-79), 2018 Farm Bill (PL 115-334).

Source: USDA, Economic Research Service (ERS), using data from USDA, Risk Management Agency, USDA, National Agricultural Statistics Service, and USDA, ERS Farm Income and Wealth Statistics.

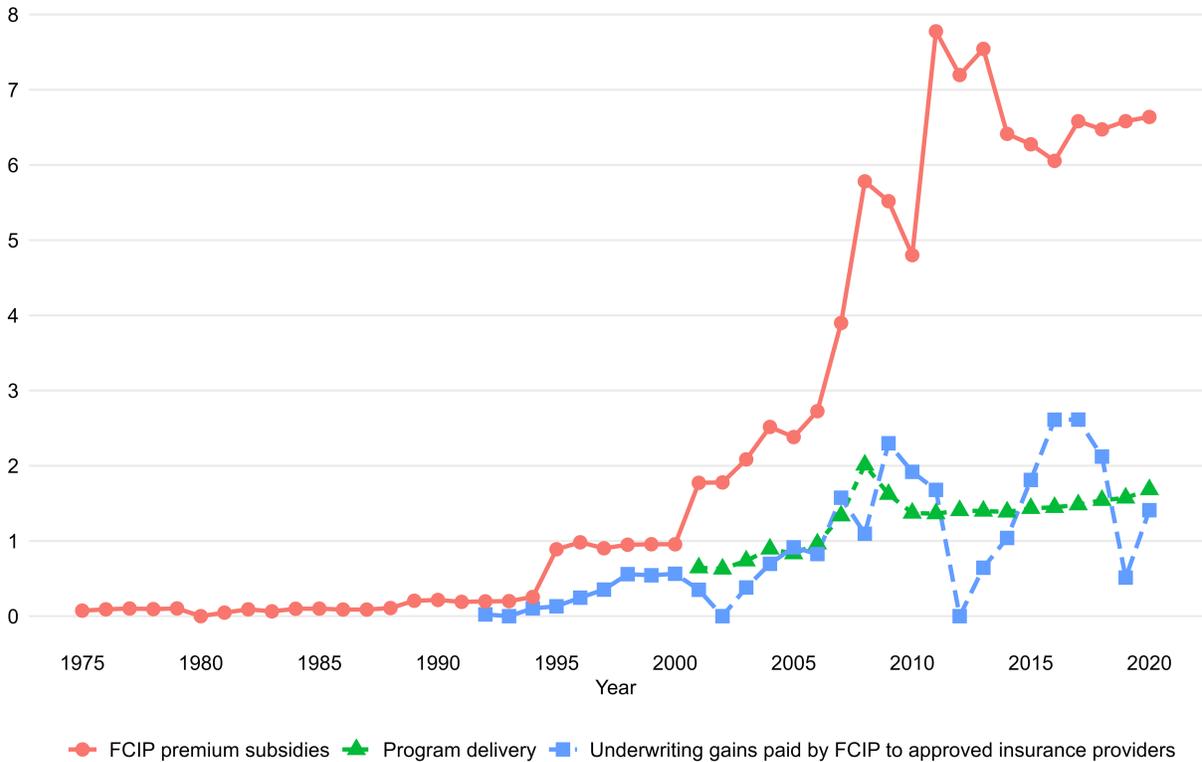
Figure 11 displays Federal costs associated with FCIP. Federal premium subsidies are the largest share of Federal costs and totaled just under \$7 billion in 2020. In addition, FCIP incurs other costs due to its public-private partnership. The Standard Reinsurance Agreement (SRA) defines the financial relationship between private insurance companies and the Federal Government. Under SRA, private insurance companies sell and service the insurance policies while the Federal government subsidizes both producer premiums and private insurance company administrative and operating expenses. In 2020, the cost of the program delivery was \$1.68 billion and \$1.4 billion was paid as administrative costs and underwriting gains to private insurance companies. Total FCIP outlays (the sum of premium subsidies, program delivery costs, and underwriting gains) for 2011–2020 averaged \$9.67 billion per year, which is a notable increase compared to the prior decade’s (2002-2010) average of \$5.44.¹³

¹³ <https://www.ers.usda.gov/topics/farm-practices-management/risk-management/crop-insurance-at-a-glance/>

Figure 11 – US Federal Crop Insurance Program costs, 1975-2020

U.S. Federal Crop Insurance Program costs, 1975–2020

U.S. dollars (billion)



FCIP = Federal Crop Insurance Program.

Notes: Negative underwriting gains are reported as zero since they do not represent costs incurred by the Federal Government.

Source: USDA, Economic Research Service, using data from USDA, Risk Management Agency.

3.4.2. FEDERAL CROP INSURANCE PROGRAM DATA

Table 7 summarizes average annual Federal crop insurance program data from 2005 through 2020 for each state. The top ten states in terms of the average number of policies with claims filed were Texas, Kansas, Illinois, Iowa, Minnesota, Nebraska, North Dakota, South Dakota, Missouri, and Indiana (see the shaded states in the “Policies Indemnified” column of Table 7). These ten states accounted for 73 percent of the policies indemnified from 2005 to 2020.

Table 7 – Crop Insurance, Average Policies Sold, Policies Indemnified and Net Reported Acres, by State, 2005 – 2020

State	Annual Average over 2005 - 2020 (16 years)		
	Policies Sold (No.)	Policies Indemnified (No.)	Reported Quantity (Ac.)
Alabama	14,192	1,527	1,017,267
Alaska	23	3	4,896
Arizona	1,671	149	279,406
Arkansas	34,912	5,004	4,947,001
California	8,013	567	1,312,376
Colorado	26,527	5,537	3,600,546
Connecticut	128	21	16,941
Delaware	1,985	444	301,198
Florida	3,133	289	531,256
Georgia	33,209	3,208	1,814,032
Hawaii	1	0	-
Idaho	7,609	1,145	1,564,909
Illinois	148,293	29,829	18,143,072
Indiana	56,493	13,409	8,713,854
Iowa	154,889	28,389	21,320,490
Kansas	228,131	38,401	17,409,086
Kentucky	18,544	3,333	2,745,359
Louisiana	21,819	2,149	2,771,870
Maine	372	46	46,927
Maryland	6,015	1,175	833,531
Massachusetts	117	22	9,963
Michigan	26,210	4,906	3,705,223
Minnesota	110,657	18,726	16,461,407
Mississippi	20,667	2,644	3,521,412
Missouri	83,149	16,545	8,387,951
Montana	21,930	3,415	5,777,870
Nebraska	141,604	19,266	14,717,868
Nevada	71	20	12,007
New Hampshire	52	5	7,353
New Jersey	1,238	181	143,093
New Mexico	3,077	558	480,755
New York	4,152	735	806,958
North Carolina	29,835	5,648	3,153,458
North Dakota	97,837	17,661	17,131,464
Ohio	55,774	12,623	6,561,371
Oklahoma	35,101	8,588	4,733,303
Oregon	4,099	749	747,019
Pennsylvania	10,870	1,927	1,056,286
Rhode Island	15	2	768
South Carolina	9,730	1,869	1,039,894
South Dakota	90,689	16,682	12,554,673
Tennessee	18,602	2,412	2,425,532
Texas	160,499	29,107	13,929,048
Utah	529	95	100,045
Vermont	460	98	71,312
Virginia	9,737	1,895	1,083,714
Washington	10,175	2,166	2,085,695
West Virginia	511	73	46,058
Wisconsin	37,277	7,714	4,316,135
Wyoming	3,376	455	262,556
Grand Total	1,754,000	311,405	212,704,203

NOTES: (a) Data reflect the major eleven crops reported to FSA annually (Barley, Corn, Cotton-ELS, Cotton Upland, Oats, Rice, Sorghum, Soybeans, Sugar Beets, Sugarcane, and Wheat) and the Adjusted Gross Revenue and Whole Farm policy types.
(b) Shading indicates State is in the top 10 for the category; ten states account for 73 percent of the indemnified policies.

As displayed in Figure 12, Federal crop insurance program policies are concentrated in the Great Plains and Midwest, reflecting the emphasis on program crops. Figure 13 maps the number of annual policies indemnified (i.e., policies that had payments for losses). The pattern of indemnity payments closely matches the distribution pattern of policies sold.

Figure 12 – Average Annual Policies Sold by State, 2005 – 2020
 (See Table 7 for Data)

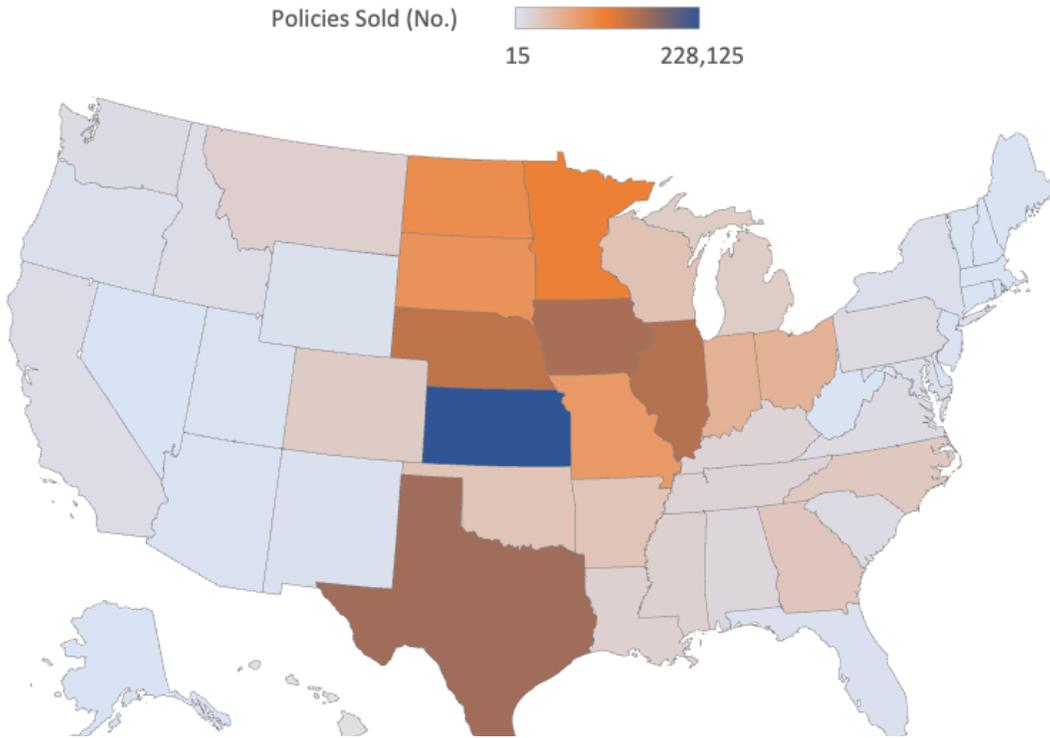
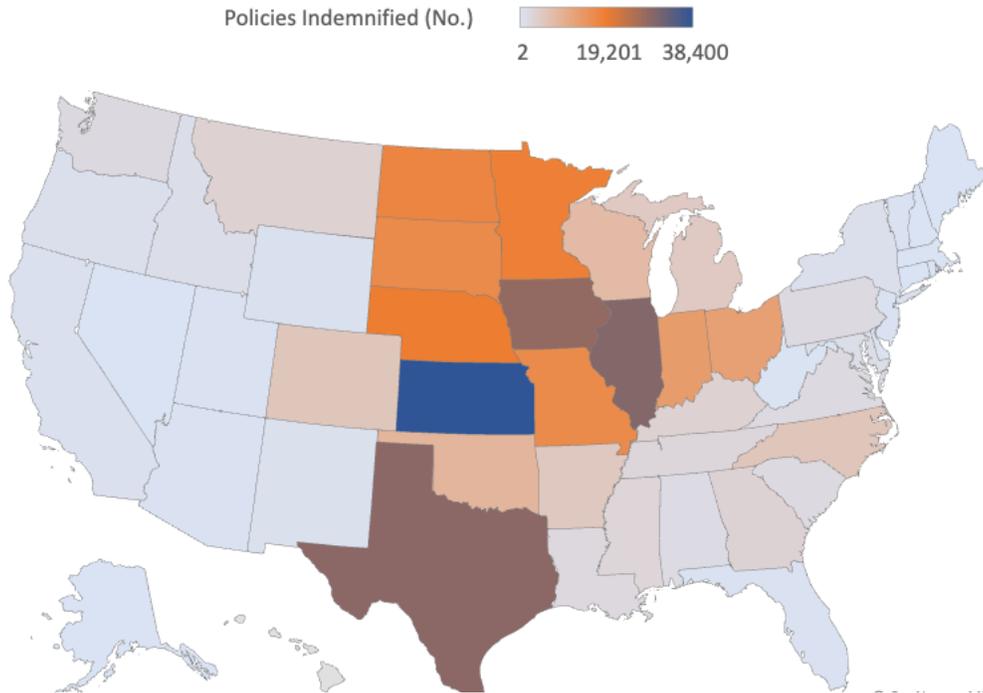


Figure 13 – Average Annual Policies Indemnified, by State, 2005 – 2020
 (See Table 7 for Data)



On average, from 2005 to 2020, there were about 1.8 million insurance policies sold annually that earned premium subsidies and covered almost 213 million acres of cropland that grew commodity crops (see Table 7). These policies accounted for \$4.8 billion in premium subsidies and \$6.2 billion in indemnities (See Table 8).

Table 8 – Crop Insurance, Average Premium Amount, Subsidy Amount, Producer Premium Payment, Indemnity Amount, and Subsidy Benefit Per Acre, by State, 2005 – 2020 (Nominal Dollars)

State	Premium	Federal Subsidy	Participant Premium Amount	Indemnity	Federal Subsidy Per Acre
Alabama	\$47,463,661	\$31,829,802	\$15,633,859	\$31,283,202	\$31
Alaska	\$56,853	\$46,309	\$10,544	\$27,253	\$9
Arizona	\$12,787,350	\$8,151,021	\$4,636,329	\$14,566,735	\$29
Arkansas	\$112,293,895	\$81,638,622	\$30,655,274	\$117,725,304	\$17
California	\$42,348,929	\$26,043,260	\$16,305,669	\$61,690,017	\$20
Colorado	\$139,489,809	\$84,221,237	\$55,268,572	\$116,830,645	\$23
Connecticut	\$326,920	\$205,344	\$121,575	\$314,457	\$12
Delaware	\$10,126,401	\$6,064,315	\$4,062,086	\$6,224,811	\$20
Florida	\$13,017,202	\$9,045,284	\$3,971,917	\$10,330,871	\$17
Georgia	\$87,510,116	\$55,991,350	\$31,518,766	\$83,613,116	\$31
Hawaii	\$3,712	\$2,552	\$1,160	\$1,028	ND
Idaho	\$41,007,218	\$22,446,061	\$18,561,158	\$36,229,658	\$14
Illinois	\$661,832,792	\$366,888,619	\$294,944,173	\$501,611,176	\$20
Indiana	\$354,832,668	\$194,731,609	\$160,101,059	\$262,671,766	\$22
Iowa	\$688,210,575	\$375,237,945	\$312,972,630	\$572,560,797	\$18
Kansas	\$605,575,982	\$367,449,895	\$238,126,086	\$449,718,384	\$21
Kentucky	\$103,475,312	\$66,526,323	\$36,948,989	\$78,453,574	\$24
Louisiana	\$73,521,687	\$52,457,518	\$21,064,168	\$59,419,817	\$19
Maine	\$561,647	\$374,582	\$187,065	\$639,100	\$8
Maryland	\$28,745,148	\$17,926,256	\$10,818,892	\$15,566,361	\$22
Massachusetts	\$280,806	\$185,026	\$95,780	\$360,951	\$19
Michigan	\$125,924,500	\$79,496,667	\$46,427,833	\$82,249,786	\$21
Minnesota	\$588,040,258	\$352,433,293	\$235,606,965	\$389,576,953	\$21
Mississippi	\$108,066,369	\$76,487,976	\$31,578,394	\$94,472,042	\$22
Missouri	\$315,857,009	\$204,176,740	\$111,680,269	\$287,032,942	\$24
Montana	\$125,646,787	\$75,788,026	\$49,858,761	\$77,104,067	\$13
Nebraska	\$520,364,876	\$300,131,574	\$220,233,302	\$298,362,005	\$20
Nevada	\$1,158,715	\$651,962	\$506,753	\$1,539,276	\$54
New Hampshire	\$104,472	\$71,809	\$32,664	\$38,613	\$10
New Jersey	\$4,113,253	\$2,761,318	\$1,351,936	\$2,468,659	\$19
New Mexico	\$15,614,699	\$10,560,957	\$5,053,742	\$19,730,092	\$22
New York	\$17,863,652	\$12,502,132	\$5,361,520	\$17,384,128	\$15
North Carolina	\$119,645,214	\$78,477,619	\$41,167,595	\$101,894,945	\$25
North Dakota	\$643,849,866	\$420,262,756	\$223,587,110	\$465,625,154	\$25
Ohio	\$246,785,438	\$144,117,810	\$102,667,628	\$158,779,030	\$22
Oklahoma	\$153,974,450	\$98,682,380	\$55,292,070	\$166,096,392	\$21
Oregon	\$23,219,412	\$12,085,543	\$11,133,869	\$26,211,101	\$16
Pennsylvania	\$42,312,700	\$28,664,413	\$13,648,287	\$20,472,107	\$27
Rhode Island	\$11,227	\$8,710	\$2,517	\$6,885	\$11
South Carolina	\$45,881,943	\$31,451,865	\$14,430,077	\$39,520,823	\$30
South Dakota	\$550,810,979	\$368,740,316	\$182,070,663	\$389,759,897	\$29
Tennessee	\$74,039,781	\$50,749,396	\$23,290,385	\$42,349,625	\$21
Texas	\$707,000,258	\$476,791,919	\$230,208,338	\$872,955,517	\$34
Utah	\$2,357,072	\$1,609,328	\$747,744	\$1,839,625	\$16
Vermont	\$1,751,143	\$1,156,260	\$594,883	\$2,176,523	\$16
Virginia	\$45,275,228	\$29,366,724	\$15,908,504	\$30,763,242	\$27
Washington	\$64,249,871	\$32,383,585	\$31,866,286	\$80,951,780	\$16
West Virginia	\$1,688,121	\$1,091,099	\$597,022	\$791,299	\$24
Wisconsin	\$192,730,418	\$122,108,409	\$70,622,009	\$138,687,598	\$28
Wyoming	\$7,929,192	\$4,569,320	\$3,359,873	\$6,327,096	\$17
National	\$7,769,735,584	\$4,784,842,835	\$2,984,892,750	\$6,235,006,223	\$22

NOTES: (a) Data reflect the major eleven crops reported to FSA annually (Barley, Corn, Cotton-ELS, Cotton Upland, Oats, Rice, Sorghum, Soybeans, Sugar Beets, Sugarcane, and Wheat) and the Adjusted Gross Revenue and Whole Farm policy types.
(b) Shading indicates State is in the top 10 for the category

It should be noted that the indemnities paid in any given year are a function of weather and prices in that year and a single year may or may not be indicative of long-term indemnities paid.

Farmers also incur costs associated with participating in the Federal Crop Insurance Program since they pay a share of their premiums. Annually, producer paid premiums averaged about \$3.0 billion between 2005 and 2020 (Table 8). As the percent of covered loss increases, the subsidy rate falls hence many farmers will opt for insurance that covers around 70 percent of the crop loss.

Average Federal premium subsidies over the period from 2005 to 2020 were about \$22 per acre. Premium subsidies per acre vary from state to state with the highest premium subsidies per acre occurring in Nevada (\$54/acre) and the lowest in Maine (\$8/acre). The ten states with the highest average per acre premium subsidies are: Nevada, Texas, Georgia, Alabama, South Carolina, Arizona, South Dakota, Wisconsin, Virginia, and Pennsylvania (See Table 8 and Figure 15).

Figure 14 displays the average annual Federal subsidy per acre. Like commodity payments, there is significant variation from state to state in crop insurance subsidies per acre, reflecting the underlying variation in the crops grown, climate, coverage level, and other factors.

Figure 14 – Average Annual Federal Subsidy per Acre, by State, 2005 – 2020
(See Table 8 for Data)

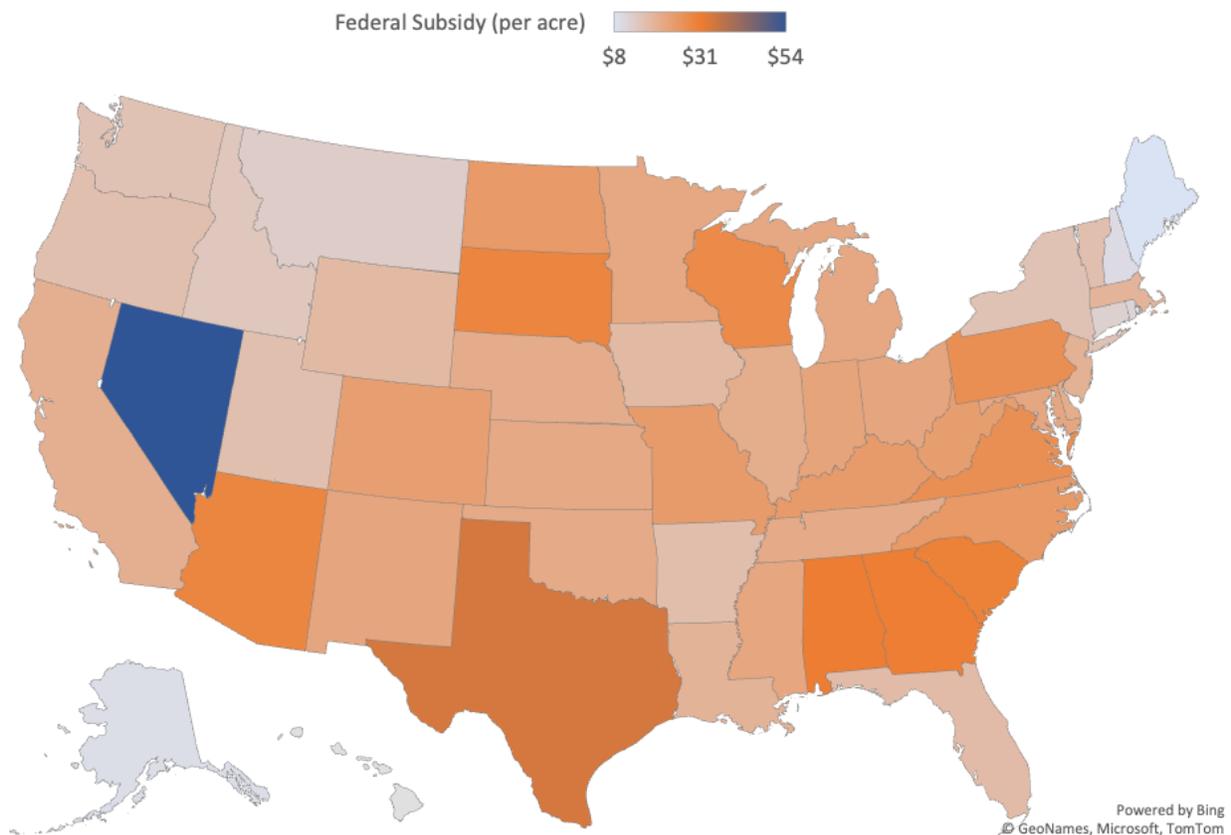
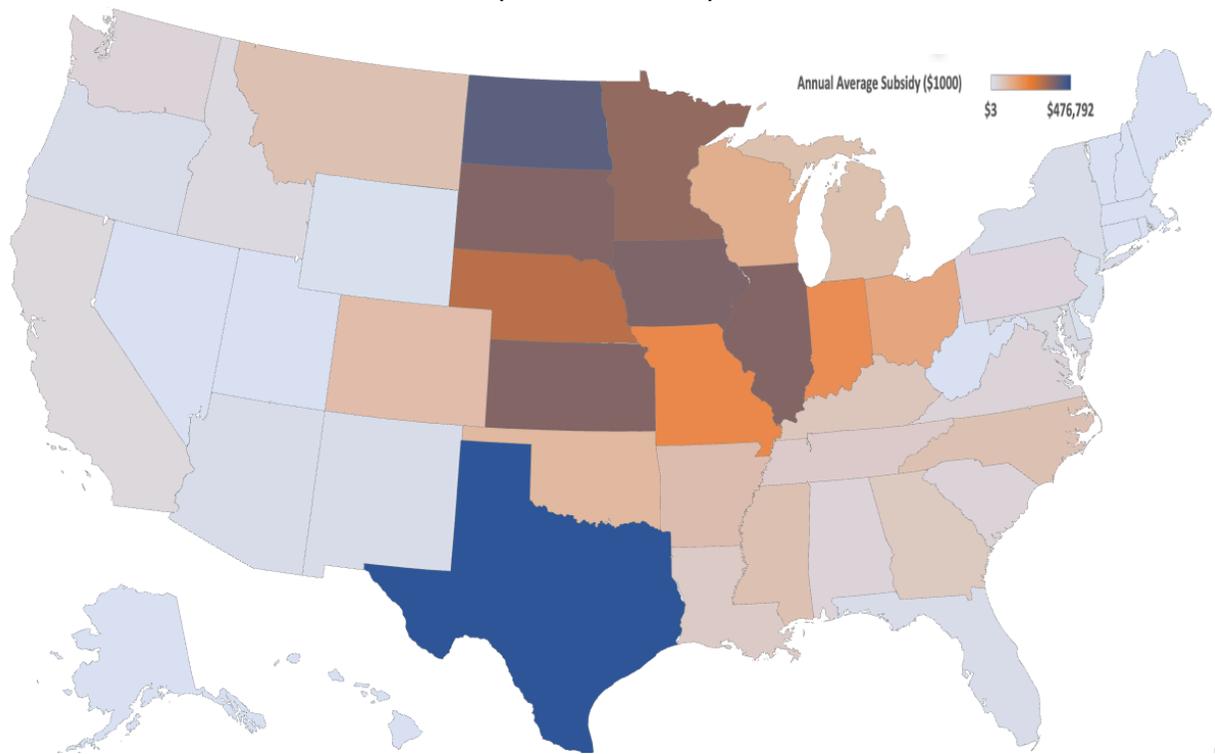


Figure 15 provides an overview of total average annual premium subsidies by state.

Figure 15 – Total Average Annual Federal Subsidy, by State, 2005 – 2020, (in \$1,000)
(See Table 8 for Data)



3.4.3. NON-INSURED CROP DISASTER ASSISTANCE PROGRAM—

The Non-Insured Crop Disaster Assistance Program (NAP) provides an insurance option for crops that are not covered under the Crop Insurance Program. Although the 2018 WRE Cost Avoidance report included NAP in the cost avoidance benefits estimate, the program was excluded from this analysis due to the limited available data and the program’s small effect on the total costs examined.¹⁴

Over the period from 2007 through 2020, total NAP payments averaged about \$134 million per year, or less than 1 percent of the annual average commodity program, supplemental and ad hoc disaster, and crop insurance related payments. As expected, payments were concentrated where there were large acreages of non-traditional commodities for which there was not a crop insurance product available. The top 5 NAP recipient states accounted for 41 to 83 percent of total payments in each year from 2007 – 2020. Texas, Oklahoma, New Mexico, South Dakota, and California accounted for nearly one-half (47 percent) of all NAP payments made over that period.

¹⁴ NAP data prior to 2012 was not available from USDA because the data stored on the mainframe computer had not been maintained (FOIA request 2022-FSA-03557-F (May 2022)). Data from 2007 through 2011 presented here are drawn from the previous WRE Cost Avoidance report (2018).

4. USDA PROGRAM COST AVOIDANCE ANALYSIS

4.1. INTRODUCTION

The analysis is based on the premise that restoring wetland systems located in agricultural land through the WRE program creates economic benefits by avoiding costs associated with outlays from commodity, Federal crop insurance, and disaster assistance programs. Although not evaluated in this project, enrollment in WRE also creates a wide range of other benefits that are related to flood mitigation and water supply, water quality, carbon sequestration, wildlife habitat, hunting, and outdoor recreation.

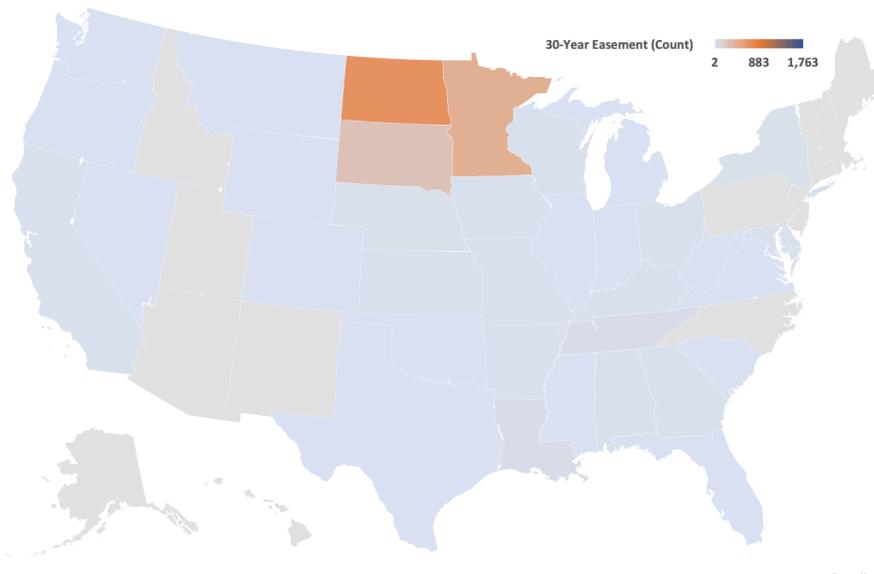
4.2. ANALYTICAL ISSUES AND ASSUMPTIONS

4.2.1. PERIOD OF ANALYSIS

Most WRE easements are held in perpetuity (77 percent), followed by less than permanent easements (22 percent), and 30-year contracts with Tribes (less than 1 percent). The less than permanent easement category includes the formerly available 30-year easement¹⁵ and where state law limits the duration (e.g., North Dakota limits wetlands reserve easements to 30 years (47-05-02.1)). Nearly 78 percent of less than permanent easements perfected from 2005 – 2020 were in North Dakota, Minnesota, and South Dakota (Figure 16).

This analysis uses a 100-year period of analysis which, from a discounting perspective, reasonably approximates perpetuity.

Figure 16 – Less than Permanent Wetlands Reserve Easements by State, 2005 – 2020



¹⁵ With the passage of the 2014 Farm Bill, enrollment opportunities were limited to permanent easements or easements of the maximum duration permitted by state law, and 30-year contracts for Indian Tribes. Prior to the 2014 Farm Bill, enrollment opportunities also included 30-year easements and restoration contracts.

4.2.2. INTEREST RATE

Because the current costs of easement acquisition in this analysis are compared to avoidance of future USDA risk management program costs, it is necessary to discount future program cost savings to the present. To do this, it is necessary to select an interest rate.

One interest rate option is the Federal water resource project interest rate that is determined by average market yields—during the preceding fiscal year—on interest-bearing marketable securities that have 15 years or more remaining to maturity. This rate is used for the Water Resources Council Rules and Regulations (33 F.R. 19170) section 704.39(a)¹⁶. To reduce short-term fluctuations, the published rate can only change a maximum of 0.25 percent compared to the prior published interest rate. For fiscal-year 2023 the water resource project interest rate is 2.5 percent.¹⁷

In addition, the Office of Management and Budget (OMB) provides annual guidance on interest rates for use in cost effectiveness, lease purchase, and related analyses¹⁸¹⁹. A forecast of real interest rates from which the inflation component has been removed and based on the economic assumptions from the 2022 Budget is presented below (Table 9). These real rates are to be used for discounting constant-dollar flows, as is often required in cost-effectiveness analysis.

Table 9 – Comparison of Real and Nominal Interest Rates on Treasury Notes and Bonds of Specified Maturities (percent)

Interest Rate Type	Specified Maturity					
	Year 3	Year 5	Year 7	Year 10	Year 20	Year 30
Nominal	1.3	1.6	1.9	2.1	2.5	2.6
Real	-1.2	-0.6	-0.3	0.0	0.4	0.5

OMB guidance indicates that programs with durations longer than 30 years should use the 30-year interest rate. OMB Circular 94²⁰ provides the following interest rate guidance: “[s]ome Federal investments provide “internal” benefits which take the form of increased Federal revenues or decreased Federal costs.... and it is appropriate to calculate such a project’s net present value using a comparable-maturity Treasury rate as a discount rate. The rate used may be either nominal or real, depending on how benefits and costs are measured.” Based on this guidance the evaluation could use the 2023 OMB real interest rate for 30 years of 0.5 percent or the nominal rate of 2.6 percent.

The Congressional Budget Office does not use discounting in its ten-year budget baselines or when it “scores” proposed legislation, hence it is essentially using 0.0 percent for the interest rate.

The Natural Resources Conservation Service²¹ assembles a list of interest rates to be used under a variety of circumstances (Table 10). For “non-water resource projects” analysis it

¹⁶ <https://www.law.cornell.edu/cfr/text/18/704.39>

¹⁷ <https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=48743>

¹⁸ <https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/a94/a094.pdf>

¹⁹ <https://www.whitehouse.gov/wp-content/uploads/2022/06/M-22-13-Discourt-Rates.pdf>

²⁰ https://www.whitehouse.gov/omb/circulars_a094#8

²¹ https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/econ/prices/?cid=nrcs143_009685

recommends using the OMB nominal interest rate for Treasury notes and bonds with 10-year maturities, which in 2022 was 2.1 percent. Since this analysis falls into the category of a “non-watershed” project analysis, an interest rate of 2.1 percent is used to discount future values.

Table 10 – Summary of Interest Rates Cited by NRCS

Description	Interest Rate
Federal Water Resource Projects (Real)	2.5%
OMB Nominal Interest Rate (30-years)	2.6%
OMB Real Interest Rate (30-years)	0.5%
OMB Nominal Interest Rate (10-years)	2.1%
CBO Baseline and Scoring Interest Rate	0.00%

4.2.3. UNCERTAINTY

It is difficult to predict future commodity, crop insurance, and disaster assistance program outlays given the diverse natural, socioeconomic, and political factors affecting the sector. Considering these uncertainties, the USDA Baseline projections, Congressional Budget Office estimates, and estimates from the Food and Agriculture Policy Research Institute tend to use the recent past as a guide. This analysis uses averages from the period from 2005 to 2020 to estimate future values.

4.2.4. PROPORTION OF CROPLAND IN WRE EASEMENTS

Anecdotal information gathered during the 2018 report development indicated that upland cropland and non-cropland areas commonly are included in an WRE easement. Uplands are critical to managing the hydrology essential to restore and maintain wetlands. However, based on discussions with NRCS, data on the non-cropland upland included in WRE easements are not aggregated at a national level²². In the absence of specific data, this report assumes that all the acreage in WRE easements is cropland.

The Agricultural Conservation Easement Program statute²³ (16 U.S.C. § 3865a) section (3)(B) “Eligible Land” mentions two categories of eligible land in addition to the land to be restored to wetlands. One category is “adjacent land that is functionally dependent on” the wetlands. And the second category is “other land that is incidental to land described in subparagraph (A) or (B)...”

²² Information on the type of land enrolled in WRE is available only in the individual easement files located in the NRCS state offices.

²³ <https://codes.findlaw.com/us/title-16-conservation/16-usc-sect-3865a.html>

- (B) in the case of a wetland reserve easement, a wetland or related area, including—
- (i) **farmed or converted wetlands, together with adjacent land that is functionally dependent on that land**, if the Secretary determines it--
 - (I) is likely to be successfully restored in a cost-effective manner; and
 - (II) will maximize the wildlife benefits and wetland functions and values, as determined by the Secretary in consultation with the Secretary of the Interior at the local level;
 - (ii) cropland or grassland that was used for agricultural production prior to flooding from the natural overflow of—
 - (I) a closed basin lake and adjacent land that is functionally dependent upon it, if the State or other entity is willing to provide 50 percent share of the cost of an easement; or
 - (II) a pothole and adjacent land that is functionally dependent on it;
 - (iii) farmed wetlands and adjoining lands that—
 - (I) are enrolled in the conservation reserve program;
 - (II) have the highest wetland functions and values, as determined by the Secretary; and
 - (III) are likely to return to production after they leave the conservation reserve program;
 - (iv) riparian areas that link wetlands that are protected by easements or some other device that achieves the same purpose as an easement; or
 - (v) other wetlands of an owner that would not otherwise be eligible, if the Secretary determines that the inclusion of such wetlands in a wetland reserve easement would significantly add to the functional value of the easement; or
- (C) in the case of either an agricultural land easement or a wetland reserve easement, **other land that is incidental to land described in subparagraph (A) or (B)**, if the Secretary determines that it is necessary for the efficient administration of an easement under the program.

The current WRE regulation²⁴ states in the Land Eligibility section (Section (e)) that

- (4) To be determined eligible, NRCS must also determine that such land is –
- (i) Farmed wetland or converted wetland, **together with adjacent lands that are functionally dependent on the wetlands**, if such land is identified by NRCS as:
 - (A) Wetlands farmed under natural conditions, farmed wetlands, prior converted cropland, commenced conversion wetlands, farmed wetland pastures, and agricultural lands substantially altered by flooding so as to develop and retain wetland functions and values; or
 - (B) Former or degraded wetlands that occur on lands that have been used or are currently being used for the production of food and fiber, including rangeland and forest production lands, where the hydrology has been significantly degraded or modified and will be substantially restored; or
 - (C) Farmed wetland and adjoining land enrolled in CRP that has the highest wetland functions and values and is likely to return to production after the land leaves CRP; or
 - (D) A riparian area along a stream or other waterway that links, or after restoring the riparian area, will link wetlands protected by the ACEP-WRE easement, another easement, or other device or circumstance that achieves the same objectives as an ACEP-WRE easement.
 - (ii) Cropland or grassland that was used for agricultural production prior to flooding from the natural overflow of –
 - (A) A closed basin lake, together with adjacent land that is functionally dependent upon it, if the State or other entity is willing to provide a 50-percent share of the cost of the easement; or
 - (B) A pothole and adjacent land that is functionally dependent on it; and
 - (C) The size of the parcel offered for enrollment is a minimum of 20 contiguous acres. Such land meets the requirement of likelihood of successful restoration only if the soils are hydric and the depth of water is 6.5 feet or less.

²⁴ <https://www.ecfr.gov/current/title-7/subtitle-B/chapter-XIV/subchapter-B/part-1468/subpart-C>

(5) If land offered for enrollment is determined eligible under this section, **then NRCS may also enroll land adjacent or contiguous to such eligible land together with the eligible land, if such land maximizes wildlife benefits and contributes significantly to wetland functions and values.** Such adjacent or contiguous land may include buffer areas, created wetlands, noncropped natural wetlands, riparian areas that do not meet the requirements of paragraph (e)(4)(i)(D) of this section, and restored wetlands, but not more than NRCS, in consultation with the State technical committee, determines is necessary to maximize wildlife benefits and contribute significantly to wetland functions and values. NRCS will not enroll as eligible adjacent or contiguous land any constructed wetlands that treat wastewater or contaminated runoff.

The WRE policy²⁵ in the NRCS Programs Manual (440-528-M, 1st Ed., Amend. 131, Feb 2020) states in section 528.105 “Land Eligibility”

I. Other Eligible Lands – Adjacent Lands

(1) If the proposed enrollment area includes eligible lands as described in paragraphs C through H of this section, the proposed enrollment area may also include adjacent lands that meet all of the following criteria:

(i) The adjacent lands will contribute significantly to the wetland functions and values or are incidental but necessary for the practical administration and management of the enrolled area.

(ii) **The acres of adjacent lands must not exceed the acres of otherwise eligible land to be enrolled.**

(iii) The adjacent lands are considered to be primarily upland buffer and associated areas but may also include riparian areas that do not meet the requirements of paragraph E of this section, restored nonagricultural wetlands, created wetlands, artificial wetlands, and noncropped natural wetlands.

Subsection I section 528-105 also provides the state conservationist with the authority waive the 1:1 ratio of adjacent land to “otherwise eligible” land established in section I.(1)(ii). It also adds policy that expand the land that can be enrolled in WRE to remaining land “that would be impractical or cost prohibitive for the landowner.”

(2) **The State conservationist may authorize a waiver allowing such adjacent land acres to exceed eligible land acres for certain unique situations.** Unique situations that may warrant a waiver to allow adjacent lands acres to exceed eligible lands acres may include the following situations:

(i) Enrollment of unique or critical wetland complexes whose functions and values inherently depend on adjacent lands that do not meet one of the eligible land types. Examples of unique wetland complexes include, but are not limited to, pocosins, prairie potholes, playas, vernal pools, fens, bogs, and ridge and swale floodplain complexes.

(ii) Enrollment targeting at-risk wetland dependent species that require additional upland areas for successfully completing their life cycle.

(iii) Enrollment where the wetland acres could become degraded from agricultural activities on lands not in the enrolled area and additional upland buffers are needed for adequate protection of the wetland functions and values on the eligible lands acres.

(iv) Enrollment where the strict application of the ratio would create unmanageable boundaries, negatively impacting the practical administration or management of the enrolled area by NRCS.

(v) **Enrollment where the strict application of the ratio would leave areas of land remaining outside the enrolled area that would be impractical or cost prohibitive for the landowner.**

²⁵<https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=44650.wba>

4.2.5. CROP PRODUCTION ON WRE ENROLLED LAND

For this analysis, it is assumed that the WRE program enrolls cropland acres that largely produce commodity crops. This assumption is supported by the overlap in the location of WRE easements and the concentration of commodity program crops.

4.2.6. NATIONAL PROGRAM ADMINISTRATIVE COSTS

Administrative costs at the national level are excluded in the analysis for the WRE program as well as the commodity program, the supplemental and ad hoc disaster assistance programs, and the crop insurance program. These costs are assumed to be fixed and not sensitive to marginal changes in program funding levels.

4.2.7. INFLATION

Historic commodity, crop insurance, and disaster assistance outlays were used without adjusting for inflation so nominal dollars were used throughout the report. An analysis comparing the real and nominal outlays for the commodity, crop insurance and WRE programs found that adjusting for inflation increased the average annual commodity payments by 35 percent, crop insurance by 31 percent, and WRE by 30 percent. Appendix 4 includes a table of inflation adjusted funding levels for the commodity programs and the supplemental and ad hoc disaster assistance programs. The inflation adjusted average annual supplemental and ad hoc disaster assistance payments were \$17 per acre, while the unadjusted payments were \$14 per acre.

The distribution over time of commodity, crop insurance, and WRE costs were similar enough to use nominal dollars throughout the report. The net effect of this is to slightly understate the reduction in WRE costs after accounting for the cost-avoidance benefits.

4.2.8. PROGRAM FUND TYPE

Federal program dollars can be expressed as budget authority, obligations, and outlays. Budget authority, often called funding, is defined as the amount of money made available by Congress to a federal agency for a specific purpose. The amount of budget authority provided can be specific—such as when the Congress provides a set amount for a program or activity—or indefinite. For example, the federal crop insurance program uses indefinite budget authority to provide insurance products to farmers and ranchers at subsidized rates.

After budget authority has been provided for a given purpose, an agency can incur an obligation which is defined as a legally binding commitment. For example, when NRCS enters into a WRE agreement with a landowner the WRE funds are obligated, but not expended.

Outlays occur when a federal agency expends funds by issuing a check or makes electronic transfers to liquidate (or settle) an obligation. In general, over the long-term there should be very little difference between average obligations and average outlays in a given program.

In the 2018 WRE Cost Avoidance report obligations were used for the WRE program because they were readily available, and outlays were used for commodity, crop insurance, and disaster assistance programs because that is how these programs report funding.

To be consistent with the farm safety net programs the 2023 WRE Cost Avoidance report uses outlays for the WRE costs instead of obligations.

4.2.9. THE FATE OF BASE ACRES ENROLLED IN WRE

To generate cost avoidance benefits related to reductions in commodity program payments it is necessary for the base acres associated with the cropland enrolled in WRE to be retired. Because there are no data available regarding the fate of base acres, it is assumed that all the base acres associated with WRE enrollment are retired, as required by the WRE statute. Section 16 U.S. Code § 3865c - Wetland Reserve Easements Section (a) states:

- (4) AGREEMENT.-To be eligible to place eligible land into the program through a wetland reserve easement, the owner of such land shall enter into an agreement with the Secretary to-
 - (A) grant an easement on such land to the Secretary;
 - (B) authorize the implementation of a wetland reserve easement plan developed for the eligible land under subsection (f);
 - (C) create and record an appropriate deed restriction in accordance with applicable State law to reflect the easement agreed to;
 - (D) provide a written statement of consent to such easement signed by those holding a security interest in the land;
 - (E) comply with the terms and conditions of the easement and any related agreements; and
 - (F) **permanently retire any existing base history for the land on which the easement has been obtained.**

It should be noted that it is possible for a producer to ask the Farm Services Agency for a waiver of section (4)(F) and have the base acres enrolled in WRE moved to other land on the operation. There is no data available to quantify the extent that base acres are shifted from WRE enrolled land to other land.

4.2.10. USDA FARM SUPPORT PROGRAMS INCLUDED IN THE ANALYSIS

Table 11 lists the programs included in the analysis of commodity programs and supplemental and ad hoc disaster assistance programs.

Table 11 – USDA Farm Programs Used in the 2023 WRE Cost Avoidance Benefit Analysis

USDA Program	Included in Commodity Program Data	Included in Supplemental and Ad Hoc Disaster Assistance Program Data
Production flexibility contract payments	X	
Fixed direct payments	X	
Cotton Transition Assistance Payments (CTAP)	X	
Cotton Ginning Cost-Share (CGCS) Program	X	
Average Crop Revenue Election Program (ACRE)	X	
Price Loss Coverage (PLC)	X	
Agriculture Risk Coverage (ARC)	X	
Counter-cyclical payments	X	
Loan deficiency payments	X	
Marketing loan gains	X	
Certificate exchange gains	X	
Peanut quota buyout payments	X	
Tobacco Transition Payment Program	X	
Supplemental and ad hoc disaster assistance		X
USDA pandemic assistance		X
Non-USDA pandemic assistance		X
Other supplemental and ad hoc disaster assistance		X
Market Facilitation Program	X	
Miscellaneous programs	X	

4.2.11. IMPACT OF CLIMATE CHANGE ON USDA RISK MANAGEMENT OUTLAYS

This analysis did not assess the potential impact of climate change on USDA outlays for risk management, but one would expect that WRE cost avoidance benefits would be increased if the analysis accounted for climate change.

USDA indicates that,

Climate change has the potential to adversely impact agricultural productivity at local and regional scales through alterations in rainfall patterns, more frequent occurrences of climate extremes (including high temperatures or drought), altered patterns of pest pressure, and changes in seasonal and diurnal temperature patterns. These impacts will affect national and international markets; the prices of food, fiber, and energy; agricultural incomes; and the environment. How farmers respond or adapt—possibly mediated by policy and technology changes—will ultimately determine the impact of these altered growing conditions on production, natural resources, and food security.²⁶

4.2.12. DENOMINATOR USED TO CALCULATE FARM SAFETY NET PROGRAMS PER ACRE COSTS

The denominator used to calculate per acre commodity, crop insurance, and disaster assistance outlays is the sum of acres planted and failed acres. This information is collected by FSA and used to implement their programs.²⁷

²⁶ <https://www.ers.usda.gov/topics/natural-resources-environment/climate-change/>

²⁷ Producers are required to self-report all cropland on each farm to FSA annually. FSA uses these data to determine payment eligibility (land must be in an eligible agricultural use to qualify for payments) and to calculate losses for various disaster programs. Data are reported in the following categories: planted; prevented planted; and failed.

Although about 85 percent of cropland is covered by the Federal crop insurance program (based on 2005 to 2020 averages) this paper assumes that the acres that are enrolled in the WRE program are all covered by crop insurance because they have higher production risks related to wetness limitations and flooding. In addition, agricultural lenders have increasingly required enrollment in the Federal Crop Insurance program as a condition for production loans.

4.2.13. HIGHER-RISK LAND

WRE enrolls farmed or converted agricultural wetlands that have been cropped. The soils and hydrologic characteristics of these farmed or converted agricultural wetlands generally have higher production risks due to poor drainage or frequent flooding. Therefore, cost avoidance estimates are most likely a lower bound since crop insurance premium subsidies for poorly drained or frequently flooded cropland should be greater in these high-risk areas and this cropland will probably have higher supplemental and ad hoc disaster assistance payments.

For example, the 2018 WRE Cost Avoidance analysis found that the average crop insurance premium subsidy in Greene County Arkansas was \$17.00 per acre and the average premium subsidy for Arkansas—excluding three counties that tend to be “high-risk”—was \$14.34. This would mean that at an interest rate of 2.1 percent over 100 years the present value of the WRE-related crop insurance cost avoidance in Greene County would be \$708 while the present value of cost avoidance in the remainder of Arkansas would be \$597. The cost avoidance benefits generated in Greene County were 19 percent higher than the average county in Arkansas. If premiums were set to reflect the riskiness revealed in the indemnities paid per acre (Green County’s per acre indemnity is 49 percent higher than the rest of Arkansas), the present value of the cost avoidance benefit in Greene County could be as high as \$890 per acre, or \$293 per acre higher than the rest of Arkansas.

4.3. ESTIMATED WRE NET COSTS

4.3.1. AVERAGE FARM PROGRAM PAYMENTS PER ACRE

Table 12 summarizes the average per acre commodity program outlays, Federal crop insurance program premium subsidy payments, and supplement disaster assistance expenditures for the period from 2005 to 2020, in nominal dollars. On a national scale, commodity payments account for 49 percent of the total average payment per acre of \$70; crop insurance premium subsidies account for 31 percent; and supplemental disaster assistance payments account for the remaining 20 percent. Total average annual farm program payments per acre range from a high of \$615 in Nevada (driven by high disaster assistance), \$587 in Rhode Island (driven by disaster assistance), and \$464 in Massachusetts (driven by high disaster assistance) to lows of \$43 in Montana, \$51 in Maryland, and \$52 in Kansas.

Table 12 – Average Annual Per Acre Commodity, Supplemental Disaster Assistance, and Crop Insurance Program Outlays, by State, 2005 – 2020 (Nominal Dollars)

State	Commodity Programs Funding (a)		Supplemental and Ad Hoc Disaster Assistance Programs (b)		Crop Insurance Subsidies		Total	
	Annual Average	Average per Avg. Planted/Failed Acre (c)	Annual Average	Average per Avg. Planted/Failed Acre (c)	Annual Average	Average per Acre (d)	Annual Average	Average Per Acre
Alabama	\$92,665,688	\$82	\$42,261,875	\$37	\$31,829,802	\$31	\$166,757,365	\$150
Alaska	\$123,000	\$22	\$1,651,625	\$290	\$46,309	\$9	\$1,820,934	\$320
Arizona	\$46,799,500	\$119	\$21,217,000	\$54	\$8,151,021	\$29	\$76,167,521	\$202
Arkansas	\$370,850,813	\$60	\$61,890,375	\$10	\$81,638,622	\$17	\$514,379,810	\$87
California	\$209,237,000	\$100	\$234,064,000	\$112	\$26,043,260	\$20	\$469,344,260	\$231
Colorado	\$92,239,625	\$24	\$72,896,500	\$19	\$84,221,237	\$23	\$249,357,362	\$66
Connecticut	\$761,188	\$29	\$4,829,125	\$187	\$205,344	\$12	\$5,795,657	\$228
Delaware	\$8,104,750	\$19	\$3,134,875	\$7	\$6,064,315	\$20	\$17,303,940	\$47
Florida	\$32,134,375	\$61	\$105,659,938	\$200	\$9,045,284	\$17	\$146,839,597	\$278
Georgia	\$275,290,375	\$128	\$76,027,938	\$35	\$55,991,350	\$31	\$407,309,663	\$195
Hawaii	\$78,875	\$7	\$11,472,750	\$983	\$2,552	-	\$11,554,177	-
Idaho	\$65,729,500	\$29	\$53,053,750	\$23	\$22,446,061	\$14	\$141,229,311	\$66
Illinois	\$630,007,250	\$29	\$124,808,438	\$6	\$366,888,619	\$20	\$1,121,704,307	\$55
Indiana	\$337,954,750	\$30	\$71,649,563	\$6	\$194,731,609	\$22	\$604,335,922	\$58
Iowa	\$689,693,875	\$30	\$209,976,813	\$9	\$375,237,945	\$18	\$1,274,908,633	\$57
Kansas	\$446,730,000	\$22	\$179,516,188	\$9	\$367,449,895	\$21	\$993,696,083	\$52
Kentucky	\$228,059,938	\$67	\$46,622,375	\$14	\$66,526,323	\$24	\$341,208,636	\$105
Louisiana	\$174,791,250	\$59	\$33,586,938	\$11	\$52,457,518	\$19	\$260,835,706	\$89
Maine	\$1,376,563	\$19	\$6,847,188	\$94	\$374,582	\$8	\$8,598,332	\$120
Maryland	\$23,810,000	\$20	\$9,727,375	\$8	\$17,926,256	\$22	\$51,463,631	\$51
Massachusetts	\$1,021,313	\$55	\$7,274,125	\$391	\$185,026	\$19	\$8,480,464	\$464
Michigan	\$133,000,875	\$27	\$61,190,625	\$12	\$79,496,667	\$21	\$273,688,167	\$60
Minnesota	\$456,561,500	\$26	\$153,192,625	\$9	\$352,433,293	\$21	\$962,187,418	\$56
Mississippi	\$269,628,813	\$76	\$38,660,188	\$11	\$76,487,976	\$22	\$384,776,976	\$109
Missouri	\$282,306,250	\$29	\$114,708,625	\$12	\$204,176,740	\$24	\$601,191,615	\$65
Montana	\$122,844,688	\$20	\$65,886,688	\$10	\$75,788,026	\$13	\$264,519,401	\$43
Nebraska	\$507,033,813	\$31	\$176,077,750	\$11	\$300,131,574	\$20	\$983,243,137	\$62
Nevada	\$983,750	\$44	\$11,423,563	\$516	\$651,962	\$54	\$13,059,275	\$615
New Hamp	\$468,813	\$35	\$1,839,000	\$138	\$71,809	\$10	\$2,379,622	\$183
New Jersey	\$3,878,563	\$11	\$9,551,875	\$28	\$2,761,318	\$19	\$16,191,756	\$58
New Mexico	\$24,319,500	\$26	\$46,970,813	\$49	\$10,560,957	\$22	\$81,851,270	\$97
New York	\$38,033,125	\$38	\$48,777,313	\$49	\$12,502,132	\$15	\$99,312,570	\$102
North Carolina	\$356,022,750	\$100	\$63,625,875	\$18	\$78,477,619	\$25	\$498,126,244	\$142
North Dakota	\$343,819,438	\$21	\$148,709,688	\$9	\$420,262,756	\$25	\$912,791,881	\$55
Ohio	\$259,836,750	\$30	\$63,986,250	\$7	\$144,117,810	\$22	\$467,940,810	\$59
Oklahoma	\$154,776,063	\$23	\$184,414,563	\$27	\$98,682,380	\$21	\$437,873,005	\$71
Oregon	\$30,135,188	\$32	\$43,028,000	\$46	\$12,085,543	\$16	\$85,248,731	\$93
Pennsylvania	\$33,447,750	\$21	\$36,177,313	\$23	\$28,664,413	\$27	\$98,289,476	\$71
Rhode Island	\$36,563	\$23	\$873,375	\$552	\$8,710	\$11	\$918,648	\$587
South Carolina	\$90,476,625	\$81	\$19,380,000	\$17	\$31,451,865	\$30	\$141,308,490	\$128
South Dakota	\$259,055,688	\$21	\$161,903,188	\$13	\$368,740,316	\$29	\$789,699,191	\$63
Tennessee	\$154,436,375	\$53	\$36,192,438	\$12	\$50,749,396	\$21	\$241,378,209	\$86
Texas	\$760,129,000	\$46	\$344,971,500	\$21	\$476,791,919	\$34	\$1,581,892,419	\$101
Utah	\$7,400,313	\$32	\$22,503,188	\$99	\$1,609,328	\$16	\$31,512,828	\$147
Vermont	\$2,897,188	\$33	\$8,623,313	\$99	\$1,156,260	\$16	\$12,676,760	\$148
Virginia	\$79,409,188	\$61	\$26,410,875	\$20	\$29,366,724	\$27	\$135,186,787	\$108
Washington	\$83,855,500	\$33	\$57,529,188	\$23	\$32,383,585	\$16	\$173,768,273	\$72
West Virginia	\$3,424,313	\$46	\$4,520,000	\$60	\$1,091,099	\$24	\$9,035,412	\$130
Wisconsin	\$162,554,875	\$27	\$102,280,875	\$17	\$122,108,409	\$28	\$386,944,159	\$71
Wyoming	\$7,814,063	\$22	\$29,155,875	\$82	\$4,569,320	\$17	\$41,539,258	\$121
Grand Total	\$8,356,046,938	\$34	\$3,460,733,313	\$14	\$4,784,842,835	\$22	\$16,601,623,085	\$70

(a) Data exclude Biomass Crop Assistance, Conservation, Dairy Margin Coverage, Milk Income Loss, and Supplemental and Ad Hoc Disaster Assistance Programs.

(b) Supplemental and ad hoc disaster assistance in 2020-22 included assistance from COVID-19 pandemic assistance programs and other ad hoc and emergency programs that make direct payments to producers. USDA pandemic assistance includes payments from the Coronavirus Food Assistance Programs (CFAP) and other pandemic assistance to producers, while non-USDA pandemic assistance includes represents loans from the Small Business Administration's Paycheck Protection Program (PPP).

(c) Acreage data reflect the major eleven crops reported to FSA annually (Barley, Corn, Cotton-ELS, Cotton Upland, Oats, Rice, Sorghum, Soybeans, Sugar Beets, Sugarcane, and Wheat)

(d) Shading indicates State is in the top 10 for the category

Figure 17 displays the average annual outlays for the three farm program areas that comprise the WRE cost avoidance benefits. In terms of average annual outlays per state for these programs, the funding is concentrated in the Great Plains and Mid-West.

Figure 17 – Average Annual Outlays for Commodity Programs, Crop Insurance Subsidies, and Supplemental & Ad Hoc Disaster Assistance, by State, 2005 – 2020, Nominal Dollars (See Table 12 for Data)

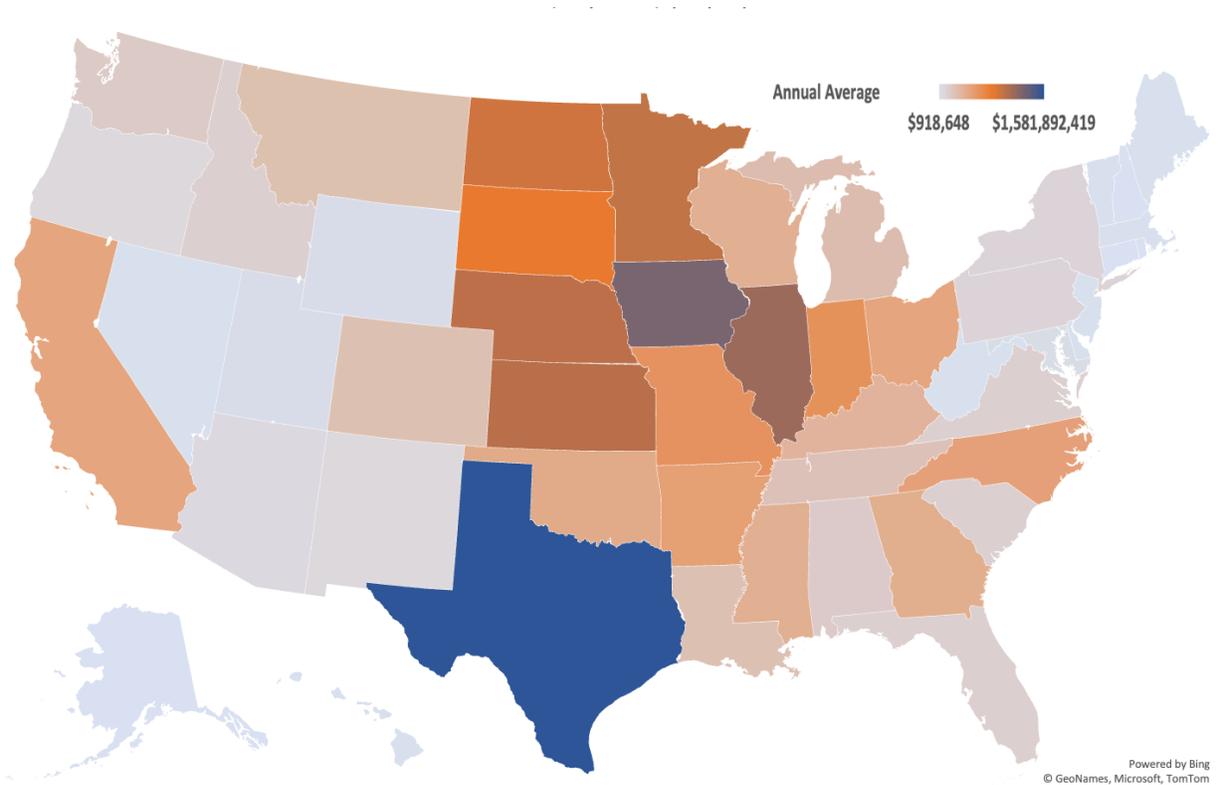
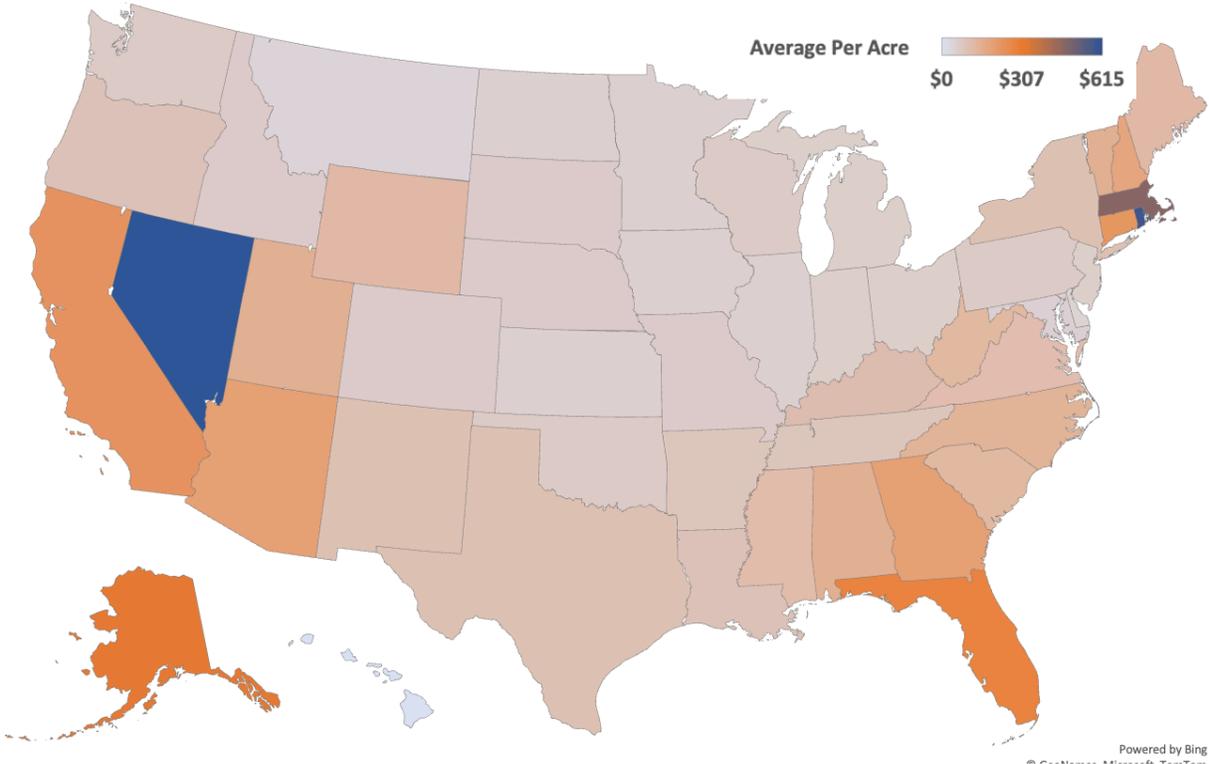


Figure 18 displays the average annual potential cost avoidance benefits per acre, by state. Compared to the distribution of gross outlays shown in Figure 17, the coastal states tend to have higher average annual potential cost avoidance benefits per acre.

Figure 18 – Average Annual per Acre Outlays for Commodity Programs, Crop Insurance Subsidies, and Supplemental & Ad Hoc Disaster Assistance, by State, 2005 – 2020, Nominal Dollars (See Table 12 for Data)



To compare the average cost of enrolling an acre of cropland in WRE to the costs avoided in forgone commodity, crop insurance, and disaster programs, it is necessary to compute the present value of future farm program outlays by discounting future farm program outlays per acre. Table 13 displays the farm program outlays per acre and as present values per acre, discounted at 2.1 percent over 100 years. These values are an estimate of the current value of the Federal costs potentially avoided with the enrollment of cropland in the WRE program. Nationally, the present value of the average farm program cost avoidance benefit is \$2,916 per acre.

Table 13 – Commodity, Crop Insurance, and Supplemental and Ad Hoc Disaster Assistance, Average Annual Dollars per Acre and Present Value per Acre, by State, (Nominal Dollars)

State	Commodity Payments		Federal Crop Ins. Subsidies		Supplemental and Ad Hoc Disaster Assistance		Total Cost Avoidance Benefits	
	Average Annual Planted and Failed Acre	Present Value Per Planted and Failed Acre	Average Annual Federal Subsidy Per Insured Acre	Present Value Per Insured Acre	Average Annual per Planted and Failed Acre	Present Value Per Planted and Failed Acre	Average Annual Per Acre	Present Value Per Planted and Failed Acre
Alabama	\$82	\$3,416	\$31	\$1,291	\$37	\$1,541	\$150	\$6,249
Alaska	\$22	\$917	\$9	\$375	\$290	\$12,081	\$321	\$13,373
Arizona	\$119	\$4,957	\$29	\$1,208	\$54	\$2,250	\$202	\$8,415
Arkansas	\$61	\$2,541	\$17	\$708	\$10	\$417	\$88	\$3,666
California	\$100	\$4,166	\$20	\$833	\$112	\$4,666	\$232	\$9,665
Colorado	\$25	\$1,041	\$23	\$958	\$19	\$792	\$67	\$2,791
Connecticut	\$29	\$1,208	\$12	\$500	\$187	\$7,790	\$228	\$9,498
Delaware	\$19	\$792	\$20	\$833	\$7	\$292	\$46	\$1,916
Florida	\$61	\$2,541	\$17	\$708	\$200	\$8,332	\$278	\$11,581
Georgia	\$128	\$5,332	\$31	\$1,291	\$35	\$1,458	\$194	\$8,082
Hawaii	\$7	\$292	No Data	-	\$983	\$40,951	\$990	\$41,243
Idaho	\$29	\$1,208	\$14	\$583	\$23	\$958	\$66	\$2,750
Illinois	\$29	\$1,208	\$20	\$833	\$6	\$250	\$55	\$2,291
Indiana	\$30	\$1,250	\$22	\$917	\$6	\$250	\$58	\$2,416
Iowa	\$30	\$1,250	\$18	\$750	\$9	\$375	\$57	\$2,375
Kansas	\$23	\$958	\$21	\$875	\$9	\$375	\$53	\$2,208
Kentucky	\$68	\$2,833	\$24	\$1,000	\$14	\$583	\$106	\$4,416
Louisiana	\$59	\$2,458	\$19	\$792	\$11	\$458	\$89	\$3,708
Maine	\$19	\$792	\$8	\$333	\$94	\$3,916	\$121	\$5,041
Maryland	\$20	\$833	\$22	\$917	\$8	\$333	\$50	\$2,083
Massachusetts	\$55	\$2,291	\$19	\$792	\$391	\$16,289	\$465	\$19,372
Michigan	\$27	\$1,125	\$21	\$875	\$12	\$500	\$60	\$2,500
Minnesota	\$26	\$1,083	\$21	\$875	\$9	\$375	\$56	\$2,333
Mississippi	\$76	\$3,166	\$22	\$917	\$11	\$458	\$109	\$4,541
Missouri	\$29	\$1,208	\$24	\$1,000	\$12	\$500	\$65	\$2,708
Montana	\$20	\$833	\$13	\$542	\$10	\$417	\$43	\$1,791
Nebraska	\$31	\$1,291	\$20	\$833	\$11	\$458	\$62	\$2,583
Nevada	\$44	\$1,833	\$54	\$2,250	\$516	\$21,496	\$614	\$25,579
New Hampshire	\$35	\$1,458	\$10	\$417	\$138	\$5,749	\$183	\$7,624
New Jersey	\$11	\$458	\$19	\$792	\$28	\$1,166	\$58	\$2,416
New Mexico	\$26	\$1,083	\$22	\$917	\$49	\$2,041	\$97	\$4,041
New York	\$38	\$1,583	\$15	\$625	\$49	\$2,041	\$102	\$4,249
North Carolina	\$100	\$4,166	\$25	\$1,041	\$18	\$750	\$143	\$5,957
North Dakota	\$21	\$875	\$25	\$1,041	\$9	\$375	\$55	\$2,291
Ohio	\$30	\$1,250	\$22	\$917	\$7	\$292	\$59	\$2,458
Oklahoma	\$23	\$958	\$21	\$875	\$27	\$1,125	\$71	\$2,958
Oregon	\$32	\$1,333	\$16	\$667	\$46	\$1,916	\$94	\$3,916
Pennsylvania	\$21	\$875	\$27	\$1,125	\$23	\$958	\$71	\$2,958
Rhode Island	\$23	\$958	\$11	\$458	\$552	\$22,996	\$586	\$24,413
South Carolina	\$81	\$3,374	\$30	\$1,250	\$17	\$708	\$128	\$5,332
South Dakota	\$21	\$875	\$29	\$1,208	\$13	\$542	\$63	\$2,625
Tennessee	\$53	\$2,208	\$21	\$875	\$12	\$500	\$86	\$3,583
Texas	\$52	\$2,166	\$34	\$1,416	\$21	\$875	\$107	\$4,458
Utah	\$33	\$1,375	\$16	\$667	\$99	\$4,124	\$148	\$6,166
Vermont	\$33	\$1,375	\$16	\$667	\$99	\$4,124	\$148	\$6,166
Virginia	\$61	\$2,541	\$27	\$1,125	\$20	\$833	\$108	\$4,499
Washington	\$33	\$1,375	\$16	\$667	\$23	\$958	\$72	\$2,999
West Virginia	\$46	\$1,916	\$24	\$1,000	\$60	\$2,500	\$130	\$5,416
Wisconsin	\$27	\$1,125	\$28	\$1,166	\$17	\$708	\$72	\$2,999
Wyoming	\$22	\$917	\$17	\$708	\$82	\$3,416	\$121	\$5,041
US Average	\$34	\$1,416	\$22	\$917	\$14	\$583	\$70	\$2,916

Period of analysis: 100 years. Discount rate: 2.1 percent

4.3.2. WRE COSTS PER ACRE

Table 14 provides an overview of WRE program costs. As discussed in Section 3, these costs do not include national program administrative costs for WRE²⁸. Note that the analysis also does not include national-level administrative costs associated with the commodity, crop insurance, or supplemental and ad hoc disaster assistance programs. Nationally, the average cost to enroll an acre of cropland in the WRE program is \$3,135, with 87 percent of that cost for financial assistance and 13 percent for technical assistance.

Table 14 – Wetlands Reserve (WRP and WRE), 2005 – 2020, Total Financial and Technical Assistance Outlays and Acres Enrolled, Averages per Acre Enrolled, by State (Nominal Dollars)

State	Total Financial Assistance (\$)	Total Technical Assistance (\$)	Total Cost (\$)	WRE Acres Perfected	Average Cost per Acre (\$)		
					Financial and Technical Assistance Cost	Financial Assistance Cost	Technical Assistance Cost
Alabama	59,806,447	5,932,907	65,739,354	25,529	2,575	2,343	232
Alaska	47,342	308,488	355,830	16	22,664	3,015	19,649
Arizona	34,470	924,555	959,025	0	!		
Arkansas	197,126,034	36,927,807	234,053,841	95,374	2,454	2,067	387
California	200,543,082	31,277,933	231,821,015	56,267	4,120	3,564	556
Colorado	14,880,607	4,738,356	19,618,962	8,327	2,356	1,787	569
Connecticut	959,327	1,156,764	2,116,091	156	13,546	6,141	7,405
Delaware	9,095,386	1,742,728	10,838,114	2,463	4,401	3,693	708
Florida	654,918,466	51,140,528	706,058,994	145,124	4,865	4,513	352
Georgia	71,267,986	8,160,929	79,428,915	44,001	1,805	1,620	185
Hawaii	786,322	778,456	1,564,779	0			
Idaho	11,457,656	2,518,005	13,975,660	4,172	3,350	2,746	604
Illinois	92,966,557	11,685,509	104,652,065	30,814	3,396	3,017	379
Indiana	106,800,263	14,697,857	121,498,120	30,163	4,028	3,541	487
Iowa	202,359,298	24,430,770	226,790,068	38,862	5,836	5,207	629
Kansas	36,449,677	5,577,295	42,026,972	17,437	2,410	2,090	320
Kentucky	97,142,170	13,482,042	110,624,213	26,817	4,125	3,622	503
Louisiana	236,716,972	32,572,836	269,289,808	125,473	2,146	1,887	260
Maine	602,949	481,046	1,083,995	308	3,525	1,960	1,564
Maryland	35,430,935	4,063,662	39,494,597	11,533	3,425	3,072	352
Massachusetts	19,852,040	1,940,798	21,792,839	1,580	13,794	12,565	1,228
Michigan	47,600,924	9,088,840	56,689,764	11,453	4,950	4,156	794
Minnesota	155,049,417	30,791,565	185,840,982	64,773	2,869	2,394	475
Mississippi	130,768,816	22,237,083	153,005,899	49,032	3,121	2,667	454
Missouri	150,417,142	25,434,704	175,851,846	44,048	3,992	3,415	577
Montana	19,119,924	7,275,363	26,395,287	12,558	2,102	1,523	579
Nebraska	115,863,996	16,876,236	132,740,232	53,799	2,467	2,154	314
Nevada	18,442,206	1,829,594	20,271,800	10,841	1,870	1,701	169
New Hampshire	65,251,503	4,789,154	70,040,657	17,382	4,029	3,754	276
New Jersey	16,221,806	2,026,893	18,248,699	2,806	6,503	5,781	722
New Mexico	3,696,156	647,061	4,343,217	822	5,282	4,495	787
New York	41,277,077	14,353,317	55,630,394	17,597	3,161	2,346	816
North Carolina	76,045,004	14,376,948	90,421,952	25,986	3,480	2,926	553
North Dakota	115,875,114	17,222,911	133,098,024	114,594	1,161	1,011	150
Ohio	49,389,658	9,719,178	59,108,837	12,633	4,679	3,910	769
Oklahoma	49,641,919	9,833,287	59,475,207	18,166	3,274	2,733	541
Oregon	85,439,679	15,995,707	101,435,386	32,314	3,139	2,644	495
Pennsylvania	35,272,591	4,416,948	39,689,539	6,942	5,718	5,081	636
Rhode Island	1,250,967	665,760	1,916,727	130	14,729	9,613	5,116
South Carolina	57,103,996	7,833,051	64,937,048	34,528	1,881	1,654	227
South Dakota	110,926,225	19,065,433	129,991,658	55,499	2,342	1,999	344
Tennessee	100,806,382	15,140,425	115,946,807	32,988	3,515	3,056	459
Texas	82,378,884	22,810,761	105,189,644	41,478	2,536	1,986	550
Utah	2,788,508	1,531,790	4,320,298	2,131	2,028	1,309	719
Vermont	8,684,583	1,732,050	10,416,633	3,395	3,068	2,558	510
Virginia	7,041,980	1,615,042	8,657,022	1,518	5,704	4,640	1,064
Washington	19,881,411	5,636,433	25,517,843	2,613	9,768	7,610	2,157
West Virginia	904,988	1,491,427	2,396,415	64	37,183	14,042	23,141
Wisconsin	87,683,310	11,707,747	99,391,057	22,809	4,358	3,844	513
Wyoming	5,161,827	3,223,359	8,385,186	2,506	3,346	2,060	1,286
Total	3,709,229,979	553,907,339	4,263,137,318	1,359,820	3,135	2,728	407

²⁸ The NRCS administrative costs above the state office level are about 2 percent of total WRE costs.

4.3.3. WRE NET COSTS, ACCOUNTING FOR USDA PROGRAM COST AVOIDANCE BENEFITS

Table 15 summarizes the net cost to enroll an acre in the WRE program. The net WRE cost is equal to the WRE costs (i.e., easement acquisition and restoration outlays summarized in Table 14) minus the present value of costs avoided in the commodity, crop insurance, and disaster assistance programs (summarized in Table 13). Negative values indicate that there is a net savings in Federal outlays because the cost to enroll cropland in WRE is less than the outlays that would have been made through USDA commodity, crop insurance, and disaster assistance programs.

Table 15 – WRE Net Cost Avoidance Benefits, (Present Value of Avoided Costs less WRE Easement and Restoration Costs), per Acre, by State

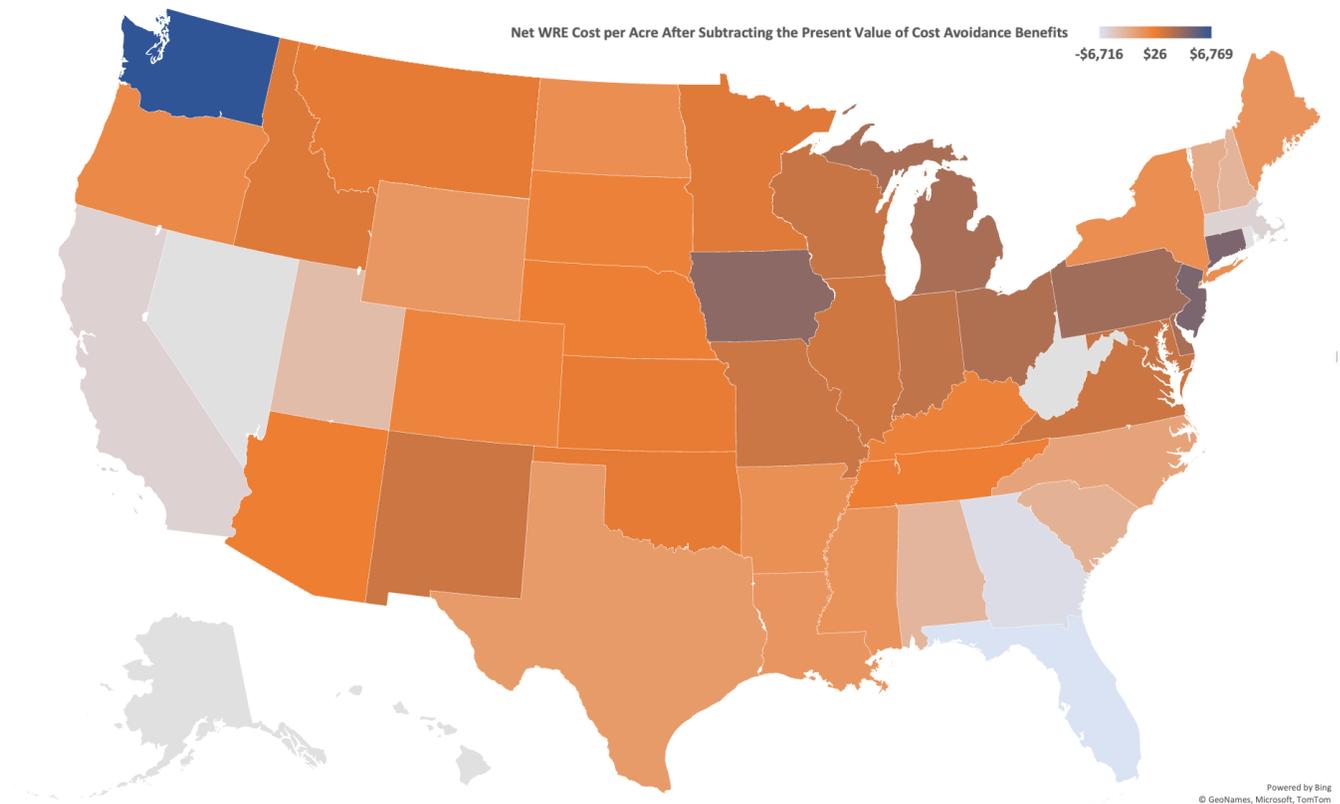
State	Net WRE Cost per Acre After Subtracting the Present Value of Cost Avoidance Benefits
Alabama	-\$3,674
Alaska	\$9,291
Arizona	\$1
Arkansas	-\$1,212
California	-\$5,545
Colorado	-\$435
Connecticut	\$4,048
Delaware	\$2,485
Florida	-\$6,716
Georgia	-\$6,277
Hawaii	NA
Idaho	\$600
Illinois	\$1,105
Indiana	\$1,612
Iowa	\$3,461
Kansas	\$202
Kentucky	-\$291
Louisiana	-\$1,562
Maine	-\$1,516
Maryland	\$1,342
Massachusetts	-\$5,578
Michigan	\$2,450
Minnesota	\$536
Mississippi	-\$1,420
Missouri	\$1,284
Montana	\$310
Nebraska	-\$116
Nevada	-\$23,709
New Hampshire	-\$3,595
New Jersey	\$4,087
New Mexico	\$1,241
New York	-\$1,088
North Carolina	-\$2,477
North Dakota	-\$1,130
Ohio	\$2,221
Oklahoma	\$316
Oregon	-\$777
Pennsylvania	\$2,760
Rhode Island	-\$9,684
South Carolina	-\$3,451
South Dakota	-\$283
Tennessee	-\$68
Texas	-\$1,922
Utah	-\$4,138
Vermont	-\$3,098
Virginia	\$1,204
Washington	\$6,768
West Virginia	\$31,767
Wisconsin	\$1,358
Wyoming	-\$1,695
Total	\$219

In 27 states, the cost of enrolling an acre of cropland in WRE is less than the associated cost avoidance benefits. On a national scale, the average WRE enrollment net cost is \$219 per acre, after subtracting the cost avoidance benefits. This represents a 93 percent reduction in the cost per acre of acquiring a WRE easement.

Figure 19 displays the distribution of net WRE costs per acre by state (negative values indicate that there is a net reduction in USDA outlays created by enrolling in the WRE program). The Southeast has a cluster of states with relatively low easement acquisition costs combined with relatively high USDA farm program payments. As a result, WRE costs in these states are more than offset by avoided USDA farm program payments.

A few states have been excluded from the map in Figure 19 either because they had no easements enrolled during the period covered by the data or they had data anomalies that likely reflected expenditures of WRE funds on wetland restoration for prior year easements. For example, over the data period, the state may have closed just a few easements with a small number of acres, while the data may have included financial assistance for those acquisitions as well as for restoration on many acres that are not reflected in the 2005 – 2020 enrollment data.

Figure 19 – WRE Net Cost After Subtracting the Present Value of Commodity Program, Federal Crop Insurance Subsidies, and Supplemental and Ad Hoc Disaster Assistance Cost Avoidance Benefits (See Table 15 for Data)



4.4. CONCLUSION

The purpose of this analysis was to estimate the potential for WRE program costs to be offset by savings in farm program payments that will no longer be made because crop production is prohibited on land enrolled in WRE easements. The analysis found that the actual public cost of enrolling an acre in WRE is far less than the apparent cost because of the substantial cost avoidance benefits generated by enrolling cropland in WRE.

APPENDIX 1 – COMMODITY PROGRAM DESCRIPTIONS

Nonrecourse loan program

Program providing commodity-secured loan funds to producers for a specified period of time (typically 9 months), after which producers may either repay the loan and accrued interest or transfer ownership of the commodity amount pledged as collateral to the Commodity Credit Corporation (CCC) as full settlement of the loan, without penalty. These loans, also referred to as "commodity loans," are available on a crop-year basis for wheat, feed grains, cotton, peanuts, rice, oilseeds, pulse crops, wool, mohair, and honey. Sugar processors are also eligible for nonrecourse loans. Participants in commodity loan programs receive loan funds based on the commodity-specific, per-unit loan rate specified in legislation. The loans are called nonrecourse because, at the producer's option, the CCC has no recourse but to accept the commodity as full settlement of the loan. Under the Marketing Loan Program, producers of eligible commodities may repay the loan at the world price (rice and upland cotton), posted county price (wheat, feed grains, and oilseeds) or national posted price (peanuts) when these prices are below the year's set commodity loan rate, thus providing a disincentive to crop forfeiture. Some commodity loans are recourse loans; meaning producers must pay back the loans in cash.

Source: <http://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/farm-policy-glossary.aspx#Noncour%20Loan%20Prog>

Production flexibility contract (also known as AMTA) payments

Payments during 1996–2002 to farmers who enrolled "contract acreage," under Title I, Subtitle B (also titled the Agricultural Market Transition Act, thus the use of AMTA payments as an alternative name for PFC payments) of the 1996 Farm Bill in a one-time sign-up in 1996. The annual total amount, specified in legislation, was allocated to specific crops (wheat, rice, feed grains, and upland cotton) based on percentage allocation factors established in the 1996 Act. Each participating producer of a contract crop received payments determined by multiplying their production flexibility contract payment quantity by the national average production flexibility contract payment rate (see below). Farmers could plant 100 percent of their total contract acreage to any crop, except for limitations on fruits and vegetables, production flexibility contract payments were replaced with direct payments under the 2002 Farm Bill.

Source: <http://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/farm-policy-glossary.aspx#Prod%20flexib%20ctrct%20pay>

Direct payments

Fixed payments for eligible historic production of wheat, corn, barley, grain sorghum, oats, upland cotton, long and medium grain rice, soybeans, other oilseeds, and peanuts. Producers enroll annually in the program to receive payments based on payment rates specified in the Farm Bill and their historic program payment acres and yields.

Source: <http://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/farm-policy-glossary.aspx#Direct%20payments>

Average crop revenue election (ACRE)

An optional revenue-based program provision introduced in the 2008 farm legislation that replaces counter-cyclical payments for those producers who elect to participate in ACRE. Once producers elect to participate, participation continues until 2012. Producers continue to receive reduced direct payments and are eligible for reduced loan deficiency payments.

Source: <http://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/farm-policy-glossary.aspx#Average%20crop%20revenue%20election>

Counter-cyclical payments

Counter-cyclical payments are available to producers with historic program payment acres and yields of wheat, corn, barley, grain sorghum, oats, upland cotton, long-grain and medium-grain rice, soybeans, other oilseeds, peanuts, and pulse crops (dry peas, lentils, small and large chickpeas). Payments are made whenever the current effective commodity price is less than the target price. The effective price is calculated by adding: 1) the national average farm price for the marketing year, or the commodity national loan rate, whichever is higher and 2) the direct payment rate for the commodity.

Source: <http://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/farm-policy-glossary.aspx#Counter-cyclical%20pay>

Market loss assistance payments

Direct payments to producers to partially offset financial losses due to severe weather and other natural disasters or stressful economic conditions, such as low commodity prices or pest and animal disease outbreaks.

Source: <http://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/farm-policy-glossary.aspx#Loan%20Def%20Pay>

Deficiency payments

Direct government payments made prior to 1996 to farmers who participated in an annual commodity program for wheat, feed grains, rice, or cotton. The crop-specific payment rate for a particular crop year was based on the difference between an established target price and the higher of the commodity loan rate or the national average market price for the commodity during a specified time period. Deficiency payments are not the same as loan deficiency payments.

Source: <http://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/farm-policy-glossary.aspx#Average%20crop%20revenue%20election>

Loan deficiency payments (LDP)

A provision initiated in the Food Security Act of 1985 that gives the Secretary of Agriculture discretion to provide direct payments for loan commodities to producers who agree not to obtain a commodity loan on their production for a particular crop year. LDPs continue to be available for all loan commodities except extra-long staple cotton. LDPs are also available for unshorn pelts or hay and silage derived from a loan commodity. The LDP provision is applicable only if a marketing loan repayment provision has been implemented (i.e., if the market price of a commodity is below the commodity loan rate). The intent of the LDP provision (as well as the [marketing loan repayment provision](#)) is to minimize accumulation and storage of stocks by the government and allow U.S. commodities to be marketed freely and competitively. The LDP payment amount is determined by multiplying the local marketing loan repayment rate by the amount of the commodity eligible for a loan. Loan deficiency payments are not the same as [deficiency payments](#).

Source: <http://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/farm-policy-glossary.aspx#Loan%20Def%20Pay>

Payment limitation

The total amount of payments must be attributed (linked) to a person, by taking into account direct and indirect ownership interests of the person in a legal entity, such as limited partnerships, corporations, associations, trusts, and estates, that are actively engaged in farming. Currently, the Farm Bill payment limits are set at \$125,000 per person per crop year for commodity payments.

Source: <https://www.fsa.usda.gov/programs-and-services/payment-eligibility/payment-limitations/index>

Marketing Assistance Loan program

This program has been available to row crop producers since the 1990 Farm Bill, providing producers interim financing at harvest time so they do not have to sell commodities when market prices are at harvest-time lows, which also allows for more orderly marketing of commodities throughout the year. Under this program, a crop producer can take out a 9-month non-recourse loan on the quantity of crops produced on his or her farm – producers either pay back the loan plus interest at the end of the loan period or forfeit the commodity to USDA (i.e., non-recourse). If market prices fall below loan rates established for each eligible crop, producers may receive Loan Deficiency Payments (LDPs). For example, if the monthly posted county price (PCP) for a given crop set by USDA's Farm Service Agency is below that crop's loan rate, the producer is entitled to collect a cash payment for the difference between the loan rate and the PCP for up to the amount of crop under loan, in lieu of forfeiting the commodity to USDA. All program crop production is eligible for the program, except on large farms where total payments run up against annual payment limitation of \$125,000.

The statutory loan rates for commodities did not change between the 2008 and 2014 Farm Bills except for upland cotton, which went from a flat \$0.52 per pound to a rate that varies between \$0.45 and \$0.52 per pound based on the simple average of the adjusted prevailing world cotton price for the previous two years. This modification occurred as a result of the U.S. loss in the Brazil cotton case at the World Trade Organization (WTO).

In fiscal year 2015, farmers took out \$5.7 billion in loans on their crops, with the value of loans on cotton (\$2.1 billion), corn (\$1.1 billion), and peanuts (\$757 million) accounting for the bulk of the loan activity. The loan program for sugar (cane and beets) is similar to the program commodity loan program except that these crops are not eligible to receive cash LDPs.

During the low-price environment of the late 1990s, billions of dollars in LDPs were paid to producers under this program. However, even though commodity prices have fallen considerably in recent years since they peaked in 2013, they generally have not fallen below loan rate levels. In fiscal year 2015, FSA paid out only \$174 million in LDPs, all for upland cotton. Over the first three years of the 2014 Farm Bill, outlays for LDPs totaled just under \$300 million, and USDA projects another \$215 million for fiscal years 2017-2018.

Price Loss Coverage (PLC) or Agricultural Risk Coverage (ARC) option

The 2014 Farm Bill eliminated the combination of Direct Payments (decoupled payments²⁹ made regardless of market conditions) and Countercyclical Payments (partially coupled payments made on historic average crop acreages and triggered by low crop prices), which were available to all program crop producers. In their place, the 2014 Farm Bill offered:

- PLC – a countercyclical program based on the national market average price for a crop falling below a fixed reference price,
- ARC – a countercyclical program based on:
 - County average revenue falling below a target revenue based on county average yields and an Olympic moving average national price (ARC-County (ARC-CO)).
 - The gap between an individual farm's crop revenue and a target crop revenue for that farm (Individual coverage option (ARC-IC)). The share of the gap received by the farmer is lower than for the ARC-CO option.

The program crops under the 2014 Farm Bill were the same as for the previous Farm Bill, except that upland cotton was excluded from the program, again due to the result of the Brazil case against U.S. cotton under the WTO.

Participating farmers had to select an option by April 2015, and that decision was binding for the duration of the 2014 Farm Bill. The majority of all base acres were enrolled in the ARC-CO option, dominated by corn and soybean farmers. Overall, 76 percent of all base acres are now enrolled in the ARC-CO program, including more than 93 percent of all corn base acres (totaling 90 million acres) and 96 percent of all soybean base acres (totaling 52 million acres). The PLC program accounted for 23 percent of total base acres, including 95 percent of all rice base acres (4.5 million acres) 99 percent of all peanut base acres (about 2 million acres), and 66 percent of all grain sorghum base acres (about 6 million acres). Wheat base acreage was pretty evenly split, with 55 percent enrolled in ARC-CO and 42 percent in PLC. Enrollment in ARC-IC was extremely low overall, with about 1 percent of all base acres covered under this program. In all, 242 million acres were enrolled in one of these three programs as of April 2015.

²⁹ Decoupled payments are “decoupled” from crop production decisions by farmers.

USDA projected that more than \$26 billion will be paid out under these programs for the crop years covered by the 2014 Farm Bill, based on crop price projections as of November 2015. Annual spending on these programs would peak in fiscal year 2017 at \$9.6 billion (80 percent of that for ARC participants), but by fiscal year 2019, total spending would fall to \$3.15 billion, with 75 percent of the payments going to PLC participants. The reversal occurs because the target revenue for each crop will decline as more recent lower prices replace the higher prices from past years in the Olympic moving average for the ARC program. For example, the fiscal year 2017 ARC payment for corn would lose a \$4.46/bu price from 2014/15 in the formula and be replaced with a lower price from more recent years, such as the \$3.70/bu price projected for the 2017/18 crop year.

APPENDIX 2 – CROP INSURANCE PROGRAM – SHALLOW LOSS POLICIES

While changes to individual crop insurance policies in the 2014 Farm Bill were modest, that bill did add two new programs, both of them available in combination with individual policies to address farmers' concerns with having no protection against shallow crop losses.

The Supplemental Coverage Option, or SCO, is an area policy available to producers of all insurable crops to supplement individual policies in order to cover a portion of the deductible. For example, the most coverage a farmer is allowed to buy under an individual policy is 85 percent of the expected yield or revenue, which means that the farmer must suffer more than a 15 percent loss (the deductible) in order to receive any indemnity. SCO coverage is at the county level and the coverage level for SCO is 86 percent, which means that the area would need to suffer a loss of at least 15 percent before a payment triggers. The language about it covering part of the deductible on the individual policy, though widely used, is only meaningful for lower levels of individual coverage (higher deductibles). Since SCO is county-based while the individual policy is farm-based, it is entirely possible that farmers could suffer a loss in the deductible layer of their individual policies but receive no SCO payment if area losses did not exceed 15 percent.

Producers must have an underlying individual policy to be eligible for SCO, which is revenue-based or yield-based depending on the underlying individual policy. The Federal Government pays 65 percent of the premium cost for SCO. Farms enrolled in the ARC-county option from the commodity title are not eligible for SCO coverage.

The second shallow loss policy is the Stacked Income Protection Plan, or STAX, available only to producers of upland cotton. This policy was devised with the assistance of the National Cotton Council to replace the countercyclical protection removed from Title I due to the WTO cotton case. It performs much like the SCO product described above, except that at least a 10 percent area loss is required, and the Federal Government pays 80 percent of the premium cost for these policies.

APPENDIX 3 – CONSTANT DOLLAR COMMODITY & DISASTER ASSIST. OUTLAYS

Table A3-1 Average Annual Per Acre Commodity, Supplemental Disaster Assistance, and Crop Insurance Program Outlays, by State, 2005 – 2020 (Inflation Adjusted, 2020 Dollars)

State	Commodity Programs (a)		Supplemental and Ad Hoc Disaster Assistance (b)	
	Total Annual Average	Average per Acre (c)	Total Annual Average	Average per Acre (c)
Alabama	\$114,797,500	\$101	\$49,235,500	\$43
Alaska	\$151,875	\$27	\$1,943,188	\$341
Arizona	\$59,230,688	\$150	\$23,908,000	\$61
Arkansas	\$451,631,188	\$74	\$71,740,125	\$12
California	\$265,103,875	\$126	\$262,514,313	\$125
Colorado	\$112,985,188	\$31	\$85,769,125	\$23
Connecticut	\$963,813	\$37	\$5,551,250	\$215
Delaware	\$9,893,250	\$24	\$3,617,188	\$9
Florida	\$39,805,375	\$75	\$126,784,563	\$240
Georgia	\$339,938,188	\$159	\$88,119,875	\$41
Hawaii	\$94,938	\$8	\$13,172,625	\$1,129
Idaho	\$79,844,188	\$35	\$59,822,875	\$26
Illinois	\$1,547,945,375	\$71	\$278,849,875	\$13
Indiana	\$414,257,375	\$36	\$80,591,813	\$7
Iowa	\$852,624,938	\$37	\$235,840,063	\$10
Kansas	\$539,654,938	\$27	\$209,071,813	\$11
Kentucky	\$291,217,500	\$86	\$53,166,500	\$16
Louisiana	\$215,430,125	\$73	\$39,054,625	\$13
Maine	\$1,695,125	\$23	\$7,865,063	\$108
Maryland	\$29,071,313	\$25	\$11,158,563	\$9
Massachusetts	\$1,213,063	\$65	\$8,428,313	\$453
Michigan	\$162,253,063	\$33	\$68,823,813	\$14
Minnesota	\$558,652,750	\$32	\$172,782,750	\$10
Mississippi	\$340,354,063	\$96	\$44,939,750	\$13
Missouri	\$343,635,125	\$35	\$131,079,625	\$14
Montana	\$148,540,188	\$24	\$76,667,500	\$12
Nebraska	\$621,903,250	\$39	\$199,298,688	\$12
Nevada	\$1,169,000	\$53	\$13,321,125	\$603
New Hampshire	\$587,375	\$44	\$2,056,750	\$155
New Jersey	\$4,720,188	\$14	\$10,874,938	\$32
New Mexico	\$29,829,000	\$32	\$54,404,125	\$58
New York	\$46,953,625	\$47	\$55,116,000	\$55
North Carolina	\$455,618,688	\$128	\$73,729,188	\$21
North Dakota	\$411,744,438	\$25	\$177,683,125	\$11
Ohio	\$316,360,438	\$37	\$72,680,500	\$8
Oklahoma	\$188,866,563	\$28	\$215,609,188	\$32
Oregon	\$36,631,063	\$39	\$48,595,000	\$51
Pennsylvania	\$41,241,438	\$26	\$40,118,250	\$26
Rhode Island	\$45,188	\$29	\$986,125	\$624
South Carolina	\$114,364,563	\$102	\$23,041,063	\$21
South Dakota	\$313,335,813	\$25	\$188,364,625	\$15
Tennessee	\$195,325,313	\$67	\$41,521,938	\$14
Texas	\$943,073,125	\$65	\$407,016,000	\$28
Utah	\$8,990,438	\$40	\$25,840,188	\$114
Vermont	\$3,609,063	\$41	\$9,843,500	\$113
Virginia	\$100,002,188	\$77	\$30,208,313	\$23
Washington	\$101,656,375	\$40	\$65,552,500	\$26
West Virginia	\$4,341,250	\$58	\$5,063,313	\$68
Wisconsin	\$200,976,563	\$33	\$115,011,938	\$19
Wyoming	\$9,642,313	\$28	\$34,005,375	\$97
Grand Total	\$11,071,972,250	\$46	\$4,120,440,438	\$17

NOTES:

(a) Data excludes Biomass Crop Assistance, Conservation, Dairy Margin Coverage, Milk Income Loss, and Supplemental and Ad Hoc Disaster Assistance Programs.

(b) Supplemental and ad hoc disaster assistance in 2020-22 included assistance from COVID-19 pandemic assistance programs and other ad hoc and emergency programs that make direct payments to producers. USDA pandemic assistance includes payments from the Coronavirus Food Assistance Programs (CFAP) and other pandemic assistance to producers, while non-USDA pandemic assistance includes represents loans from the Small Business Administration's Paycheck Protection Program (PPP).

(c) Acreage data reflect the major eleven crops reported to FSA annually (Barley, Corn, Cotton-ELS, Cotton Upland, Oats, Rice, Sorghum, Soybeans, Sugar Beets, Sugarcane, and Wheat)

(d) Shading indicates State is in the top 10 for the category

Appendix 4 – Estimating WRE Technical Assistance Costs

The 2014 Farm Bill consolidated the **Wetlands Reserve Program (WRP), Farm and Ranch Lands Protection Program (FRPP), and Grassland Reserve Program (GRP Easements)** in the Agricultural Conservation Easement Program (ACEP) administered by the Natural Resources Conservation Service (NRCS). ACEP has two components, the Wetlands Reserve Easement (WRE) and the Agricultural Land Easement (ALE).

The WRE is essentially the former WRP, while ALE incorporated FRPP and GRP easement purposes. ACEP participants receive financial and technical assistance in exchange for enrolling their lands in one of the two components:

- 1) WRE offers easements (permanent or 30 years) and 30-year contracts, the latter only being available to Indian Tribes. Participants agree to restore, protect, and enhance wetlands and associated land according to the terms of the easement agreement and the wetland reserve plan of operations (WRPO). NRCS provides landowners compensation based on the value of the land and the costs associated with the WRPO. The U.S. Government (usually NRCS) is the easement holder.
- 2) Under ALE, NRCS partners with eligible entities (e.g., states, local governments, or nongovernmental organizations) to purchase easements (either permanent or for the maximum duration allowed by state law) on agricultural land. Eligible entities are the easement holders, and NRCS provides up to one-half of the fair market value of the enrolled land. A conservation plan is only required for land that is designated by NRCS as highly erodible cropland.

With the implementation of ACEP, NRCS financial tracking was adjusted accordingly to reflect the structure of the new program. While financial assistance (obligations and payments to participants) can be differentiated by each easement and contract type, technical assistance is not differentiated by program component. In addition, NRCS does not allocate technical assistance (TA) funding by program component consequently this granular level of data is not available from the agency financial system. A simple national split would fail to reflect the significantly different TA requirements between the two components, and the variability in program demand and implementation across states. WRE would be expected to require a larger share of total ACEP TA given that it involves the direct purchase of land rights by the federal government (with specific acquisition procedures and continuing commitment to monitoring and easement enforcement) while ALE easements are acquired and managed by eligible entities (NRCS provides no more than 50 percent of the purchase price). In addition, WREs include restoration and management activities to ensure that the value of the public investment is achieved and maintained.

To estimate the share of TA costs associated with WRE, this analysis used an historical program comparison to approximate the percentage of ACEP TA that might reasonably be expected to have gone to the support of WRE activities. The analysis is based on the total technical assistance obligations from fiscal years (FY) 2005 – 2013 for WRP, FRPP, and GRP as compared to WRP technical assistance as a predictor of the level of technical assistance associated with WRE. Program (WRP, FRPP, GRP) technical assistance obligation data are readily available online at USDA's RCA Data Viewer site.³⁰ GRP offered two participation options – rental contracts (10, 15, 20 and 30-year) and easements (30-year, maximum under state law, and permanent) and the data do not differentiate technical assistance based on the type of enrollment. To account for that, the analysis adopted the program's stated expectation that no more than 60 percent would go to easements and used that factor to scale the GRP TA data included in the combined TA estimate.³¹

$$\text{WRP TA\$} / \text{WRP+FRPP+(GRP (60\%)) TA \$}$$

The table below reflects, by state, the WRP TA obligations as a percentage of the total obligations for the three consolidated programs for FYs 2005 – 2013, and the average percentage across the 9 years preceding program consolidation. State level estimates are used in favor of a national average to reflect the variability in land, natural resources, and by extension program implementation. For the seven ACEP fiscal years (2014 – 2020), the state TA average percentage is applied to the state ACEP TA costs to estimate the WRE TA used in this analysis.

³⁰ Available at: <https://www.nrcs.usda.gov/rca-data-downloads>

³¹ Fiscal Year 2005 GRP obligations were anomalous, being orders of magnitude higher than the following years but had only minimal effect on the averages for the entire period examined (less than 5 percentage points across states with the exception of Alabama was the outlier, which had a 7-percentage point difference when FY 2005 was excluded).

Table A4-1 – ACEP WRE Technical Assistance (TA) Factor (WRE TA as a Percent of Combined WRE-FRPP-GRP TA)

State	Fiscal Year									Average
	2005	2006	2007	2008	2009	2010	2011	2012	2013	
Alabama	14.3	52.1	72.9	71.2	85.4	91.0	91.2	93.9	88.2	73.4
Alaska	3.0	16.1	8.5	72.2	61.0	63.9	84.7	10.3	28.5	38.7
Arizona	11.7	54.3	66.0	85.6	42.0	53.2	58.3	80.5	65.6	57.5
Arkansas	95.9	99.5	99.3	99.0	98.5	97.3	97.2	99.2	98.9	98.3
California	85.5	94.4	92.9	82.9	80.8	87.0	91.5	87.6	89.4	88.0
Colorado	33.6	79.9	78.0	75.1	62.4	61.1	52.2	61.2	47.1	61.2
Connecticut	2.8	7.0	8.7	64.1	36.3	23.7	19.8	9.9	8.3	20.1
Delaware	29.3	33.3	57.1	69.8	33.8	44.9	42.9	43.6	39.2	43.8
Florida	63.5	96.4	95.1	93.1	93.0	93.1	93.2	95.7	98.2	91.3
Georgia	43.3	91.4	90.1	76.9	86.2	82.0	88.2	99.0	99.7	84.1
Hawaii/Pacific	16.8	54.7	35.0	77.1	63.3	50.9	48.0	48.0	45.4	48.8
Idaho	62.1	73.0	59.2	75.5	45.6	79.0	31.3	60.7	47.3	59.3
Illinois	89.3	93.9	91.9	89.6	91.4	98.4	93.5	95.6	92.6	92.9
Indiana	90.6	99.0	100.0	99.6	95.1	97.9	97.4	98.0	98.1	97.3
Iowa	88.7	97.9	95.2	99.4	96.1	94.8	97.0	98.6	98.6	96.3
Kansas	57.4	64.5	62.2	90.0	74.9	82.9	85.1	76.7	83.1	75.2
Kentucky	64.7	74.3	81.8	67.8	57.3	74.4	82.3	86.2	86.4	75.0
Louisiana	98.1	99.9	99.3	99.8	98.6	99.1	99.5	100.0	100.0	99.4
Maine	4.9	21.8	37.5	45.5	55.2	60.7	46.8	55.1	71.6	44.3
Maryland	24.2	47.4	34.3	50.5	33.2	60.5	61.6	81.5	88.1	53.5
Massachusetts	15.8	27.0	41.0	33.2	30.2	40.8	47.2	22.7	31.9	32.2
Michigan	77.9	92.0	85.3	81.2	68.9	75.7	81.9	84.9	90.0	82.0
Minnesota	90.3	98.5	96.8	97.2	91.3	94.2	97.4	94.5	95.2	95.0
Mississippi	87.0	98.3	97.9	99.7	96.2	97.7	98.5	99.0	98.7	97.0
Missouri	78.2	91.6	90.6	96.3	92.5	91.9	94.6	97.0	98.5	92.3
Montana	59.8	80.1	77.1	75.1	51.8	64.0	54.0	74.9	71.5	67.6
Nebraska	91.3	93.3	98.4	99.0	94.1	93.9	95.3	94.6	95.2	95.0
Nevada	2.5	0.4	6.4	69.5	17.5	22.3	78.4	61.3	43.8	33.6
New Hampshire	16.1	30.3	36.2	46.6	79.4	70.9	57.7	85.1	87.8	56.7
New Jersey	35.9	23.2	26.8	21.2	14.8	28.1	33.3	27.6	47.5	28.7
New Mexico	6.9	22.6	41.4	70.8	34.5	38.6	61.1	70.7	56.6	44.8
New York	77.4	92.7	91.1	93.1	90.1	83.1	80.1	87.9	77.6	85.9
North Carolina	70.1	87.3	84.3	78.2	77.0	86.8	86.8	87.4	86.0	82.6
North Dakota	57.9	90.4	83.7	98.9	94.5	94.2	94.7	98.7	99.8	90.3
Ohio	55.5	84.0	74.2	68.7	61.2	81.9	68.0	61.0	66.9	69.1
Oklahoma	72.4	84.4	63.8	76.0	76.0	78.1	81.9	95.6	89.2	79.7
Oregon	75.5	98.8	97.8	97.5	95.1	93.8	95.9	105.6	96.9	95.2
Pennsylvania	11.5	32.8	27.5	41.7	33.8	32.6	43.8	81.5	70.0	41.7
Puerto Rico	10.9	96.3	0.0	96.2	0.0	85.4	0.0	100.0	100.0	54.3
Rhode Island	17.9	34.4	16.0	55.1	33.5	40.4	30.4	17.3	16.1	29.0
South Carolina	83.6	95.5	92.1	85.6	88.0	85.6	89.8	89.6	78.2	87.6
South Dakota	67.0	97.4	99.9	99.2	90.4	89.7	87.3	94.1	96.8	91.3
Tennessee	65.7	93.7	83.0	89.2	88.9	89.6	94.6	98.4	93.7	88.5
Texas	83.8	62.0	86.6	93.4	60.9	82.9	75.5	84.5	84.7	79.4
Utah	25.1	59.2	53.3	81.9	68.1	80.3	51.5	65.0	31.6	57.3
Vermont	26.3	13.9	17.5	31.7	27.7	46.9	31.4	26.0	45.4	29.7
Virginia	15.3	45.1	41.2	57.1	50.8	62.0	60.6	60.1	50.0	49.1
Washington	83.3	92.6	83.0	84.7	61.2	66.1	79.5	60.2	77.3	76.4
West Virginia	11.0	9.3	11.5	49.3	27.3	52.0	62.1	35.6	45.5	33.7
Wisconsin	83.4	92.0	85.5	81.4	85.7	84.3	87.6	79.9	83.4	84.8
Wyoming	35.3	71.2	76.5	91.1	66.4	37.7	10.0	43.4	26.8	50.9
National Average	72.0	87.4	84.3	85.1	78.9	81.7	82.1	87.8	87.0	82.9

Source: USDA-NRCS, 2012-2021 data from Financial Management Modernization Initiative (FMMI), 2002-2011 data from Foundation Financial Information System (FFIS).
 Data are available at RCA Data Downloads at: <https://www.nrcs.usda.gov/rca-data-downloads>