

AGRICULTURE RESILIENCE ACT

Workshop in Applied Earth Systems Management II

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EXECUTIVE SUMMARY

The Agriculture Resilience Act of 2020 (H.R. 5961) was introduced in the House of Representatives by Chellie Pingree (D-ME1) on February 12th, 2020. The Agriculture Resilience Act (ARA) aims to dramatically reduce greenhouse gas emissions from the agricultural sector, setting a goal of net-zero greenhouse gas emissions by 2040. The wide-reaching and complex nature of the agricultural sector creates a multitude of challenges and barriers to mitigate the sector’s many emissions sources. To address these complexities, the ARA takes a multifaceted approach to emissions reductions and advances its net-zero goal by incentivizing sustainable agricultural strategies, establishing programs to mitigate food waste, and promoting research to improve crop resilience in the face of climate change.

To encourage the use of ecologically beneficial practices, the ARA establishes a series of educational and technical assistance programs, designed to inform producers about the range of available management tools and strategies that aim to reduce the environmental impact of their operations and improve resilience to climate change. This report proposes a program design to implement these educational and technical assistance programs and establish a new source

of climate expertise within the United States Department of Agriculture (USDA).

Our program design recommends that the ARA’s programs be strategically implemented within existing educational and technical assistance programs conducted by the National Resource Conservation Service (NRCS), an agency of the USDA. By building the programs around existing staffing structures and workflow patterns, we have created an efficient and cost-effective implementation model that will successfully advance the ARA’s ambitious goals.

The program design centers around the creation and implementation of three primary initiatives:

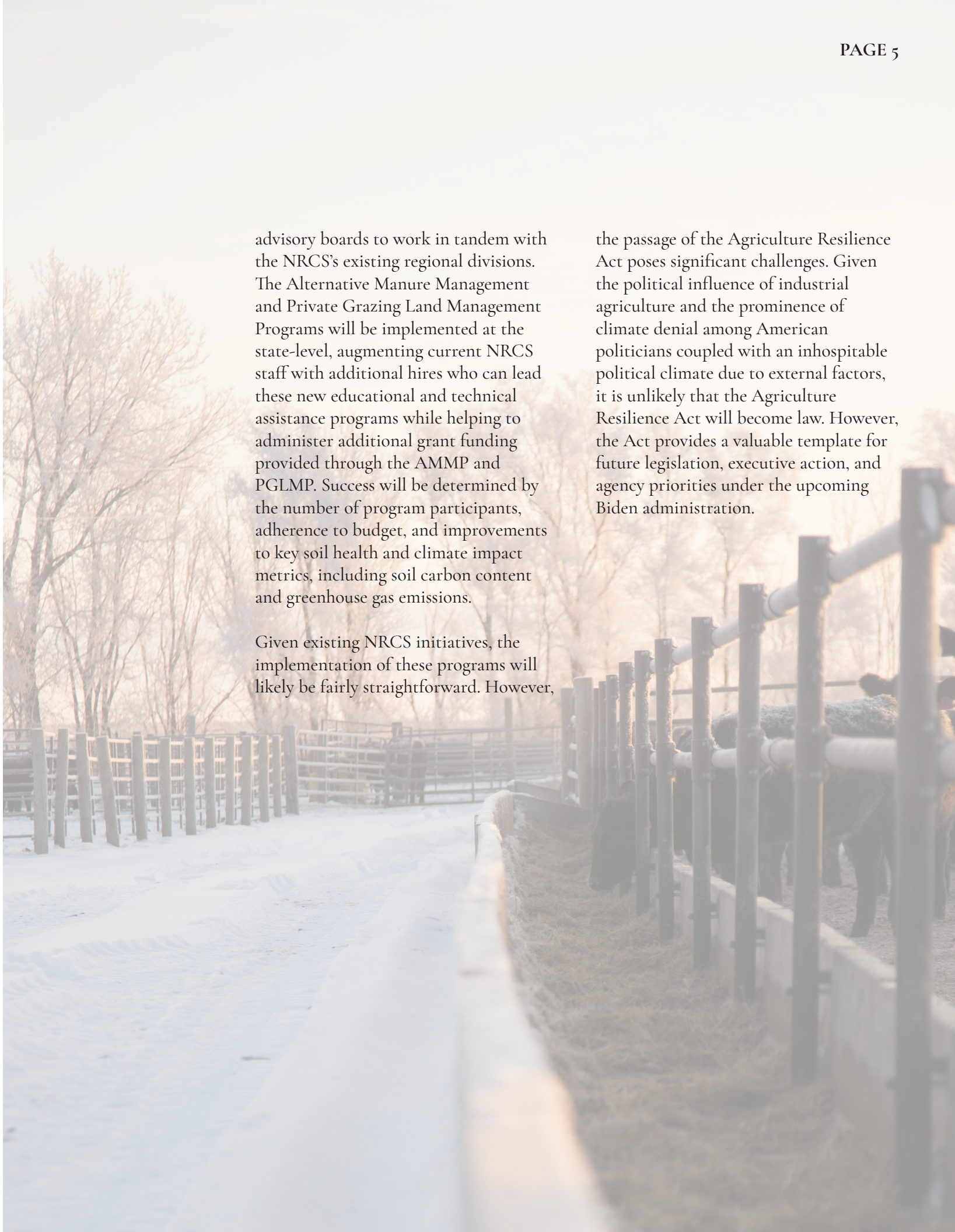
- 1) Regional Climate Councils, which advise on region-specific climate risks,
- 2) the Alternative Manure Management Program (AMMP), which promotes the reduction of greenhouse gas emissions from livestock manure, and
- 3) the Private Grazing Land Management Program (PGLMP), which advances land management strategies that are beneficial for soil health and carbon sequestration.

The Regional Climate Councils are a federal-level initiative that creates

advisory boards to work in tandem with the NRCS’s existing regional divisions. The Alternative Manure Management and Private Grazing Land Management Programs will be implemented at the state-level, augmenting current NRCS staff with additional hires who can lead these new educational and technical assistance programs while helping to administer additional grant funding provided through the AMMP and PGLMP. Success will be determined by the number of program participants, adherence to budget, and improvements to key soil health and climate impact metrics, including soil carbon content and greenhouse gas emissions.

Given existing NRCS initiatives, the implementation of these programs will likely be fairly straightforward. However,

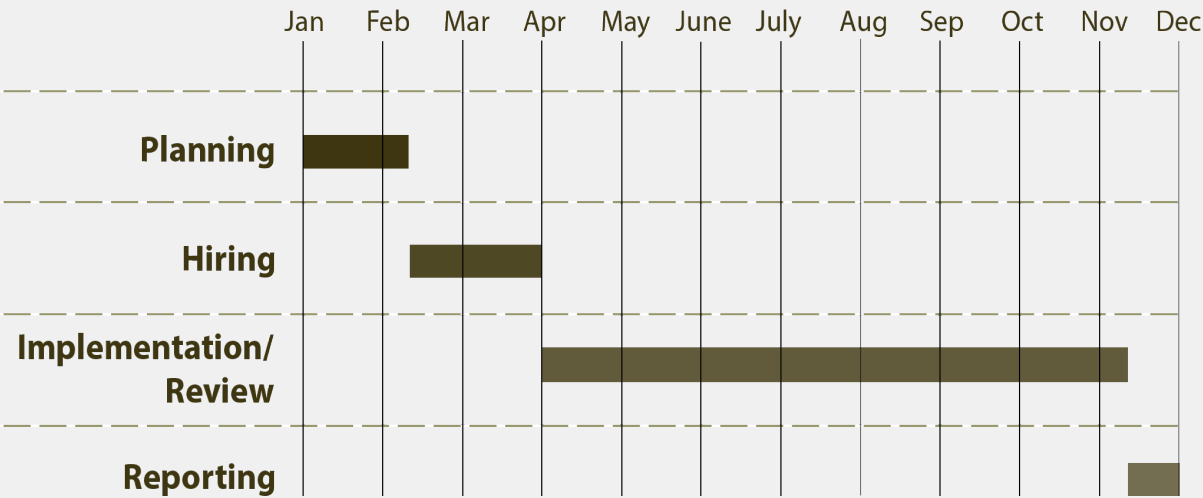
the passage of the Agriculture Resilience Act poses significant challenges. Given the political influence of industrial agriculture and the prominence of climate denial among American politicians coupled with an inhospitable political climate due to external factors, it is unlikely that the Agriculture Resilience Act will become law. However, the Act provides a valuable template for future legislation, executive action, and agency priorities under the upcoming Biden administration.



INTRODUCTION

The Agriculture Resilience Act outlines a series of programs designed to reduce greenhouse gas emissions from agriculture while improving the sector’s climate resilience and coping capacity. The Act promotes these goals through the advancement of regenerative agricultural practices, including pasture grazing, alternative manure management, and composting. Our team has created an implementation plan for two of the bill’s key initiatives, The Alternative Manure Management Program and the Private Grazing Land Management Program. These programs will be implemented by the state offices of the National Resource Conservation Service (NRCS), guided by the policies and priorities of the federal-level NRCS administration (USDA-NRCS, 2020). Our implementation plan also includes the creation of an additional federal-level body known as the Regional Climate Council. Divided into the four NRCS operating regions, the Regional Climate Council will provide climate-specific guidance to NRCS state offices. The councils will help ensure that the state-level implementation of NRCS programs considers the varied threats that climate change presents to regions across the United States. In this report, we will detail the specific components of our implementation plan and draw links between the implementation of the programs outlined in the Agriculture Resilience Act and the mitigation of greenhouse gas emissions resulting from American agriculture.

This calendar covers the first year of the program’s development and implementation.



POLITICAL CONTEXT

To better understand the current status and future of the Agriculture Resilience Act, it is important to analyze not only the current political climate, particularly as it relates to the Act’s likelihood to pass into law but also the individuals and organizations that might be impacted by and involved in the political process. With an ambitious goal of reducing greenhouse gas emissions from agriculture by 50% before 2030, the bill will have a significant impact on agricultural producers and, on those who rely on the US food system.

The Agriculture Resilience Act was proposed by Maine representative Chellie Pingree on February 12th, 2020, and was referred to the House committees on Agriculture, Ways and Means, Education

and Labor, Energy and Commerce, Oversight and Reform, and House Oversight (Pingree, 2020). The interests of various stakeholders — including small-scale agricultural producers, large agri-businesses, and individual consumers — all influence elected officials and are therefore vital to consider when considering the potential passage and implementation of the ARA. Moreover, to effectively implement the bill, it is essential to understand the interests and needs of these stakeholders, as well as their potential impact on the political process. Therefore, we will begin this report with an analysis of stakeholder interests and their influence on the passage or failure of the Agriculture Resilience Act.

Maine representative Chellie Pingree



Stakeholder Assessment

Stakeholders Supporting the Bill

Likely supporters of the Agriculture Resilience Act include small and organic farmers, researchers and research institutions in the agricultural sector, environmental and climate organizations, private companies who value sustainability, and biomass energy and technology companies. The practices outlined in this bill are consistent with the current practices and values of small and organic farms across the United States. Additionally, the bill provides grant resources for small farms hoping to improve their practices, which would provide valuable support for small and organic farms hoping to bolster their resilience and increase the sustainability of their practices. The programs put forth in the ARA are also more easily implemented on small farms than on larger farms, which may require more substantial capital investments and more complicated on-farm adjustments.

Many small and organic farmer coalitions such as the Organic Farmers Association, National Organic Coalition, Organic Seed Alliance, Community Alliance with Family Farmers have written statements in support of the bill (Statements of Support, 2020).



Small and organic farmer coalitions

The Agriculture Resilience Act also includes a series of research grants which would provide opportunities for researchers from both private and public institutions to conduct funded research in areas including cultivar development, soil science, and animal husbandry. Research organizations including the Union of Concerned Scientists, the Organic Research Foundation, Harvard University, and the University of Maine have written statements of support for this bill (Statements of Support, 2020).



Research organizations

There is also substantial support for the ARA among environmental activists. Groups including Earthjustice, the National Resources Defense Council, and the Environmental Working Group, endorse the Agriculture Resilience Act, underscoring its potential contribution to greenhouse gas emissions mitigation (Statements of Support, 2020).



Environmental activists

Private-sector organizations that are aligned with the values of these activist groups, including Stonyfield Organics and Coastal Enterprises Incorporated, have also backed the bill (Statements of Support, 2020). Similarly, companies that produce services, technologies, and products promoted or subsidized by the bill such as, Michigan Biomass and Jamestown Energy — who install and maintain the kinds of biodigesters promoted in the bill — expect to see an increase in business should the bill pass and have, therefore, expressed support for its passage (Biomass Power Association, 2020).



Private-sector organizations and/or companies

Stakeholders Opposing the Bill

Most large agricultural corporations will oppose the bill because the practices and land management strategies proposed will likely cut into their profit margins. Many of the strategies proposed in the ARA reduce production capacity, which makes farms significantly less profitable. The bill also advocates decreasing dependency on pesticides and synthetic fertilizers through holistic, ecologically based pest management techniques, which would, in turn, reduce the profits of the large agricultural corporations selling these products. The interests of large agri-business are represented in Washington by influential lobbying groups, who fight to ensure the federal policy will not impact profit margins for large agricultural producers. Large agri-businesses are thus powerful adversaries that pose an immense challenge to the passage of this Act.

Notably, the bill fails to include a crucial stakeholder group: farmworkers, whose livelihoods will be directly impacted by any changes to land management strategies. The interests and perspectives of farmworkers are not addressed in the bill, creating a potentially harmful absence of farmworker protections. The exclusion of farmworkers from the bill has resulted in the absence of vocal farmworker support for the bill’s passage, depriving advocates of a potentially valuable ally from the outset.

Lastly, price-conscious customers may oppose the bill because its proposed programs will likely increase the cost of food. As agricultural practices change, the negative social externalities of agricultural production (including greenhouse gas emissions and more localized forms of environmental damage) will likely be reflected in the cost of food. Similarly, the costs of on-farm improvements not recompensed by the bill could potentially be passed onto consumers, resulting in higher food prices. For low-income consumers, these price increases may constitute a harmful reduction in purchasing power without additional legislation to increase food subsidies.

Large corporations, farmworkers, and customers may oppose the bill



Status of The Agriculture Resilience Act

Introduced shortly before the COVID-19 pandemic hit the United States, the bill has not made any tangible progress after committee review. According to a statistical analysis performed by Skopos Labs and published by GovTrack, the ARA has only a 4% chance of enactment (GovTrack.us, 2020). The bill remains in the first step of the legislative process (committee review) and therefore, to pass, it would need to move through all 6 committees, be debated on the house floor, passed through both the House and Senate, and then signed by the President before January 2021. Given the COVID-19 pandemic, social unrest, and the resistance of the Trump Administration to pass climate change mitigation policy, it is highly unlikely that this bill will become law.

If the bill ultimately fails, it may be reintroduced in its current form or embedded in other legislation when the political climate is more hospitable. Under the Biden administration, which has pledged its support for climate change mitigation and adaptation programs across all sectors, portions of this bill may be used in subsequent agriculture policy. We are optimistic that the programs and policies put forth in this bill will appear in future legislation.

Large corporations, farmworkers, and customers may oppose the bill





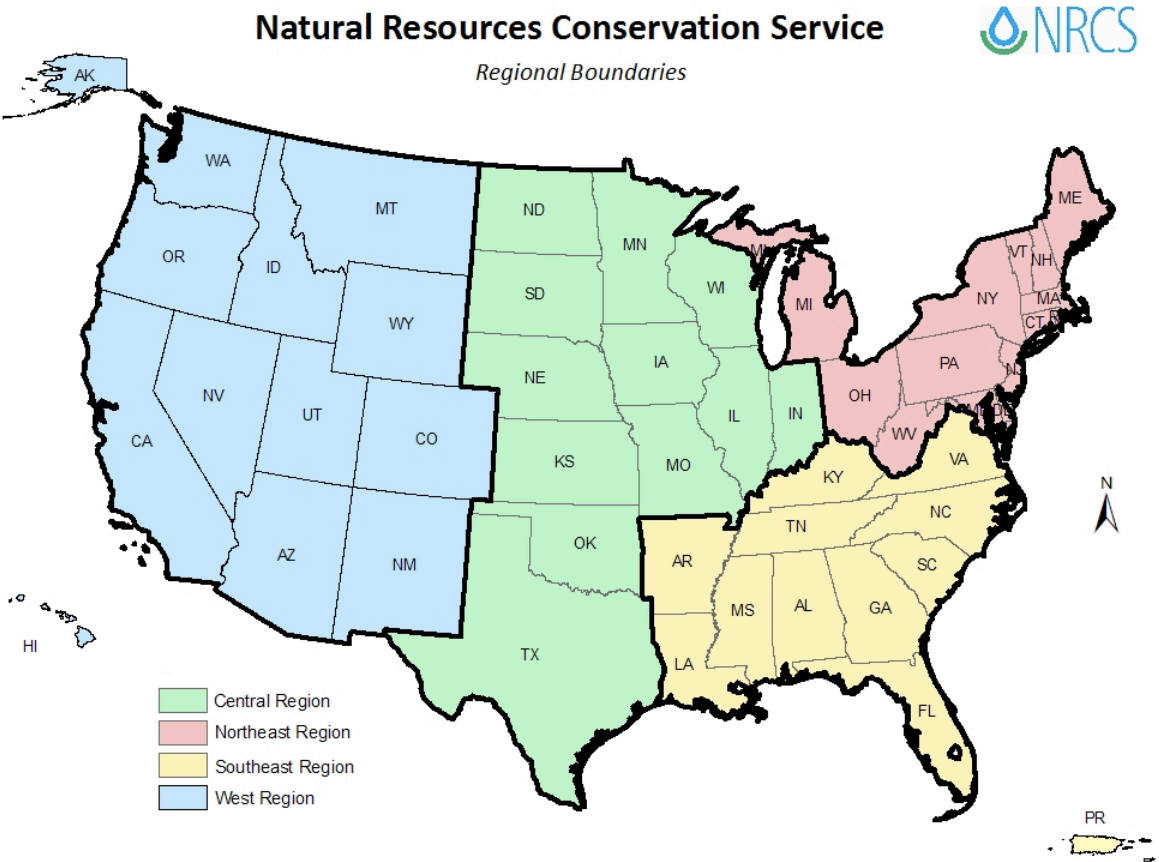
I PROGRAM DESIGN



Introduction

The implementation model proposed in this report spans the first year of program implementation and includes the work required to begin each program (including assessing internal capacities and hiring and onboarding new staff) as well as the primary components of program implementation and evaluation. All three initiatives included in our design will be implemented by the Natural Resources Conservation Service (NRCS), an agency of the United States Department of Agriculture. The NRCS operates at both the federal and state-level, through a combination of federal-level administrative staff, state-level administration, and state-managed field staff (USDA-NRCS, 2020). Field staff administers technical assistance and in-field education programs designed to increase technical and scientific

competence among landowners and agricultural producers. Specialized assistance is provided by subject matter experts, including, for example, wetland management specialists, rangeland specialists, and scientists across a variety of disciplines. Our implementation includes both federal and state-level initiatives from the NRCS and draws on the scientific expertise of specialists. Our program design draws on existing lines of communication and work plans within the agency to execute three new initiatives: federal-level Regional Climate Councils and state-level programs in Alternative Manure Management and Private Grazing Land management. To facilitate a clear discussion of program implementation, this report uses a single state, Vermont, to demonstrate state-level program implementation.



FEDERAL LEVEL PROGRAM: Regional Climate Councils

In this period of abrupt global warming, it is critical that federal agricultural policies accommodate regional variations in climate exposures and risks into program implementation, internal policy, and producer guidance. Yet, at the time of this report, the NRCS does not have a dedicated body issuing climate-informed guidance. Our program design calls for the creation of a set of Regional Climate Councils, which seek to issue up-to-date recommendations on how NRCS programs and program participants can cope with changing climate conditions and mitigate climate change. Adopting region-specific climate councils will

allow NRCS staff to tailor their work to the unique exposure risks in each region. In the fall of 2020, a devastating derecho destroyed much of Iowa’s crop, claiming the title as the most costly thunderstorm in US history (Henson, 2020). With severe natural disasters like this one projected to increase in frequency in the years to come, it is imperative that they be factored into the management of agricultural systems. The Regional Climate Councils will guide the NRCS as it assists producers in preparing for and increasing resilience in response to worsening climate conditions.

Necessary Elements

Each council will serve as a forum to foster dialogue between NRCS staff, climate and soil scientists, and community representatives, each of whom has a stake in the creation of council recommendations. Each council will represent one of four existing NRCS geographic areas (Central Region, Northeast Region, Southeast Region, and West Region) with the regional conservationist serving as the chair (*Regional Conservationists / NRCS*, n.d.). Each of the four regional bodies will convene three times per annum in order to generate recommendations that will directly inform the policies

and procedures of all NRCS programs. By encouraging conversations between scientists of different expertise and representatives of the affected communities, the councils will ensure that NRCS policies are holistic, community-specific, and closely tied to climate change projections and threats. After each meeting, all regional Councils will draft reports detailing the specific climate risks of their assigned region, the consequences of those risks for agriculture, and recommendations on how NRCS programs and program participants can adapt to changing climate conditions.

Staffing, Budget, and Calendar

The Regional Conservationists will be supported by two full-time office staff, an operations manager and a program manager. These hires will oversee and administer the council meetings. The operations manager will be responsible for setting meeting times, contacting each councilmember to verify their attendance, supporting the regional conservationist during meetings, and otherwise ensuring that each of the four regional councils meet regularly and without issue. The program manager will be responsible for taking notes at every meeting, generating reports, and passing the reports along to state conservationists.

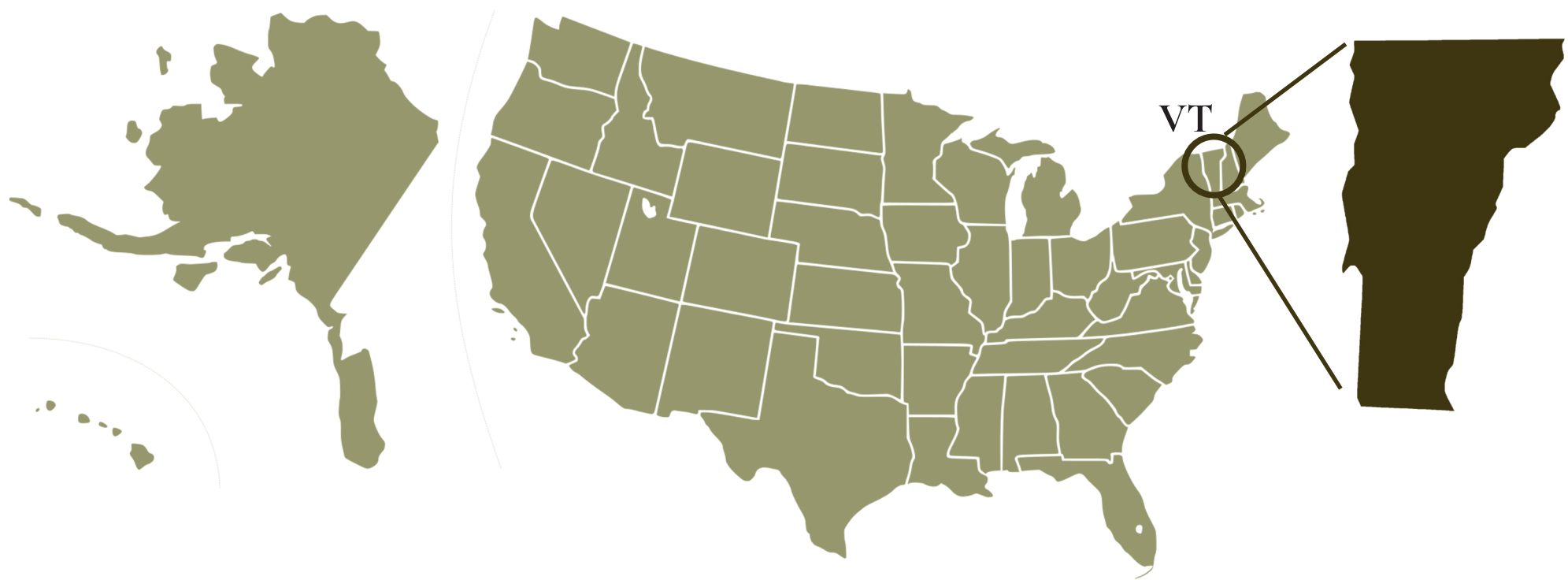
The operations manager and program manager will each be hired at GS-11, at a total cost of \$191,000 annually including salary and fringe benefits. Members of the Climate Advisory Council will either be existing government employees or representatives of stakeholder groups who draw salaries from outside employment. As such, there will be no need to allocate funding for securing participation from members of the council. Since the councils will convene remotely to allow inter-state collaboration, there will be no need to pay for office space.

Performance Management

The success of each council will be measured by the efficacy of the council’s policy recommendations. Monitoring will include quantifying how effectively policy recommendations lead to the sequestration of carbon in managed soils, as well as avoided carbon emissions. This will require taking soil samples at the beginning of each agreement as well as throughout regular intervals during the grant period. These soil samples will be extracted by existing NRCS personnel and shipped to third-party labs for analysis. Soil data will then be sent to

either a Rangeland Specialist or Grazing Lands Specialist, depending on who has oversight of the land from which the samples were collected. The specialist will then process the data and report the results to the state conservationist. Increases in soil carbon content, both net increases and as a percentage, will then be tracked to determine the effectiveness of the program. Finally, all reports and evaluations will be made accessible to the public for transparency and accountability.

NRCS STATE-LEVEL EDUCATION AND TECHNICAL ASSISTANCE PROGRAMS



Vermont NRCS

The programs included in this implementation model are complex and will impact multiple forms of public and private sector activity. To simplify this report, we have selected Vermont as a case study in implementation. Vermont is representative of other U.S. states in several key respects:

- Agriculture represents 5% of the state’s economy which is consistent with the national average,
- The state is rural and features both industrial and small farms, making it an excellent reflection of national industrial activity, and
- Vermont has a range of active NRCS programs that work closely with a range of producers to improve agricultural practices.

The state is therefore an ideal model for implementation of our selected programs from the Agriculture Resilience Act.





2 ALTERNATIVE MANURE MANAGEMENT

PROGRAM DESIGN: Alternative Manure Management

Overview

The purpose of the Alternative Manure Management Program (AMMP) is to reduce greenhouse gas emissions from livestock waste management through non-digester dairy and livestock methane management strategies. If stored in wet conditions, manure can be broken down by anaerobic bacteria, producing methane gas emissions (Ciborowski, 2001). Dry manure handling and storage is therefore an important strategy to

reduce greenhouse gas emissions from manure storage and management. The AMMP promotes the use of non-digester dairy or livestock methane management on farms that currently handle anaerobic and wet manure. The AMMP will offer grants, technical expertise, and economic incentives for farm operators that elect to switch to dry manure handling and storage to mitigate on-farm emissions.

Necessary Elements

The Alternative Manure Management will expand on an existing NRCS program, the Environmental Quality Incentives Program (EQIP). By extending the suite of services provided under EQIP to include manure management, our program design streamlines implementation and ensures continuity between existing NRCS programs and new, climate-oriented initiatives (J. Porter, personal communication, October 6, 2020). Farms can apply to the Alternative Manure Management Program by submitting funding

proposals for one or a few of the manure management strategies outlined in the bill. Farms can apply individually or in a cluster with other neighboring farms to share resources during application and implementation. Grants can be used for equipment, installation, and maintenance of manure management technologies and strategies. Farms will then be monitored as they implement these new techniques to determine the extent to which the newly implemented manure management strategies reduce methane emissions.



EQIP provides financial and technical assistance to agricultural producers

Staffing and Budget

State offices will receive a proportion of the bill’s total funding that is equivalent to their typical share of federal funding for agricultural and conservation programs. Vermont typically receives 0.7% of such funding (*Agriculture Appropriations Chart: Fiscal Year 2020, 2019*). The bill would allocate \$150 million dollars per year from 2021-2030 to the Alternative Manure Management Program. The state of Vermont would therefore receive an additional \$1.05 million dollars per year in funding for Alternative Manure Management grants and programming.

This new funding would amount to a 10% increase in Vermont’s total NRCS funding. To manage the influx of funding and the resultant increase in programming, we recommend a 10% increase in staff for Vermont. This would yield four new hires for the Alternative Manure Management Program including an Agriculture Engineer, Assistant for

Field Operations, Grant Technician, and an Administrative Support staff.

The Agricultural Engineer will be hired at a GS-12, the highest level proposed for the new hires, as this person will be responsible for maintaining communication with interested farmers, landowners, and managers. The Assistant for Field Operations will be hired at GS-10 and their responsibilities will include working closely with grant applicants once management disbursed funding. Both the Grant Technician and Administrative Support will be hired at a GS-8 as administrative roles (*2020 GS Locality Pay, n.d.*). The salaries for the four new hires, including fringe benefits and travel expenses come to \$323,000. The rest of the available funding, \$727,000 for 2021, will be allocated for grants. The funding received by farmers from these grants will be used to install and maintain new alternative manure management systems and equipment.

Our proposed program calendar includes five phases of program enactment and management; these phases span planning, hiring, implementation, review, and reporting. Both state-level programs will follow a similar implementation process. When farmers apply for technical and or financial assistance, a field officer will be deployed to assess the unique needs of the farm. Soil samples will be collected to determine carbon metrics and identify the existing state of soil health. Appropriate specialists to each program

will then make assessments based on soil data and provide recommendations regarding the farm’s management strategies. For the alternative manure management program, the Agricultural Engineer will verify the infrastructure for the manure-methane capture and storage equipment. A review will be conducted to integrate feedback and measurements of success, and a report will be sent to the State Conservationist for review. A more thorough breakdown of the calendar can be found in Appendix A.

Performance Management

The success of the Alternative Manure Management Program will be judged by three primary metrics: penetration, adoption, and environmental impact.

- **Penetration** measures the success of outreach efforts in reaching potential program participants. Success will be determined by tracking the number of grant applications over time, as well as the total amount of funding awarded.
- **Adoption** measures the efficacy of the projects funded through the AMMP. Environmental benefits will be determined by converting the quantity of avoided methane emissions into a dollar amount using the federally approved social cost of carbon.

- **Environmental impact** will be determined by calculating avoided methane emissions using a generalized conversion factor between the amount of manure processed and the amount of methane released per unit of manure. This would allow decision-makers to incorporate the social cost of carbon to determine the environmental benefit of the manure management systems.

These metrics will be tracked regularly in a data management tool by the Agricultural Engineer. An annual analysis of the tracked data will be performed to allow for updates and potential shifts in program outreach or metrics by the Agricultural Engineer and reported to the State Conservationist.



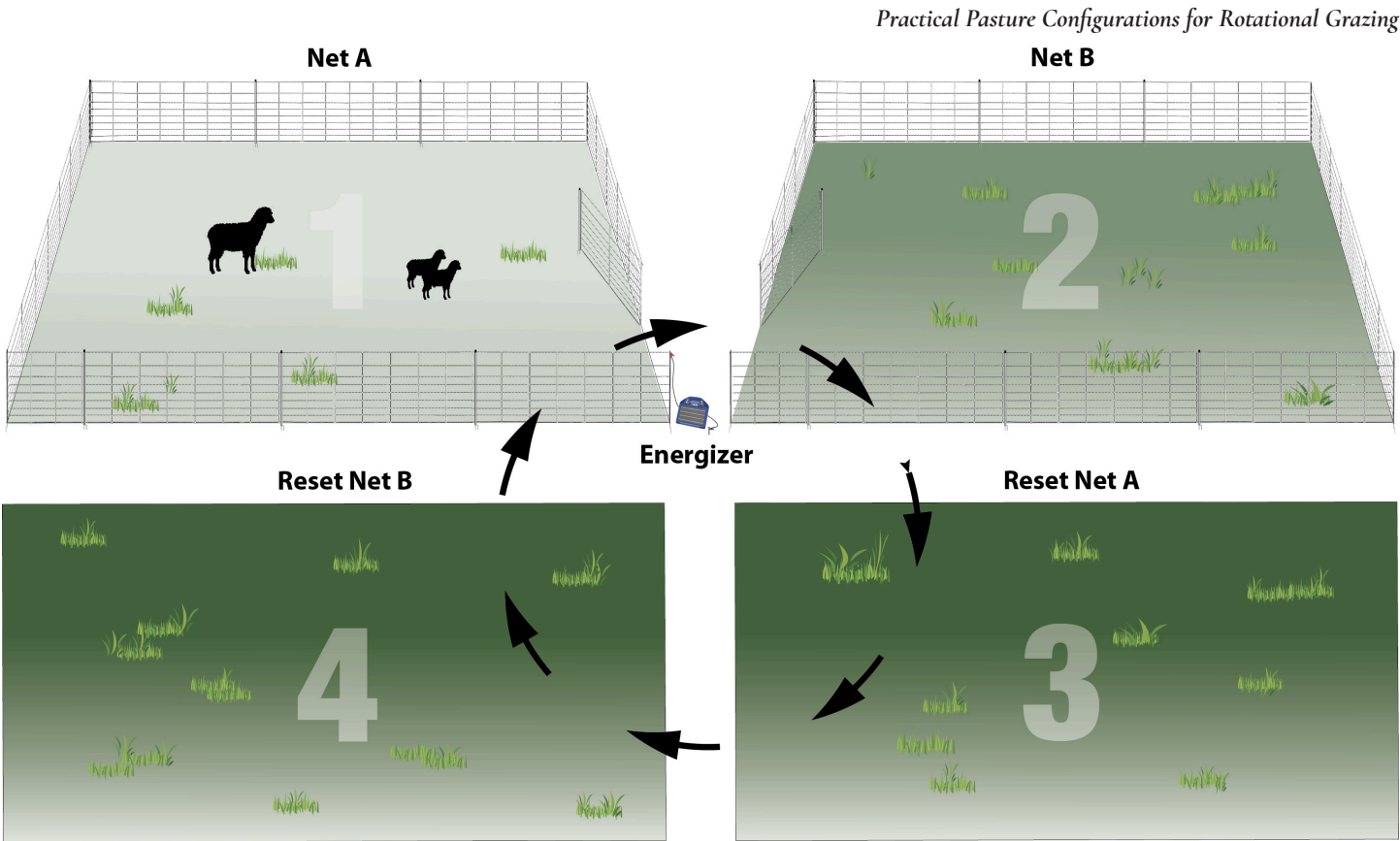
PROGRAM DESIGN:

Private Grazing Land Management

Overview

The Private Grazing Land Management Program promotes improved land management strategies that increase soil carbon sequestration, decrease soil erosion, bolster water retention, and otherwise improve the health of local ecosystems. There is enormous latent capacity in US grazing lands to create resilient ecosystems capable of both mitigating and withstanding climate change, if proper agricultural management techniques are adopted. In addition to providing valuable

environmental benefits, there is evidence that adopting alternative grazing strategies, such as rotational management, can improve the vitality, fertility, and productivity of agricultural management systems (Undersander et al., 2002). This program will incentivize such techniques by offering grants to participating land-owners and grazing land managers. These incentives will be tailored to fit the environmental and economic needs of specific landowners by agricultural professionals.



Necessary Elements

Like the Alternative Manure Management Program, the Private Grazing Land Management Program will build on the existing Environmental Quality Incentives Program (EQIP), which focuses on funding on-farm improvements, soil-amendment programs, and providing field-based technical assistance. This program will expand on EQIP and offer economic incentives to farmers and ranchers in exchange for the adoption of particular grazing techniques, such as rotational

grazing and integrated crop-livestock management, on the lands that their livestock graze on. Expert advisers within the NRCS will tailor recommendations to individual landowners in a manner informed by relevant directives from the relevant Regional Climate Advisory Council. These programs will be monitored on the basis of how effectively they work to sequester carbon in addition to their contributions to overall ecosystem health and vitality.

Staffing, Budget, and Calendar

Technical and administrative staff involved in this program will be increased in a manner proportionate to the relative increase in each state’s share of federal funds. Using the example of the Vermont NRCS again, three new staff members will be hired to support the Private Grazing Land Management Program. These positions include two technical staff and one administrative staff member. The technical staff will consist of a Rangeland Management Specialist and a Grazing Lands Management Specialist, each of whom will be hired on at GS-11, and the administrative support staff will be hired at GS-8, for a total of \$235,000 including salary and fringe benefits. New employees will be hired and trained

within 26 weeks of the enactment of the program. The Rangeland Specialist will provide consultation services to landowners whose cattle graze on marginal or rocky soils and public lands whereas the Grazing Lands Specialist will confer with farmers and landowners whose cattle graze on farmland in an integrated fashion. The program will allot an additional \$115,000 in grants to provide direct economic incentives for landowners and managers. These grants will be disbursed in the 20 week period following the end of the hiring and training period for new personnel with the goal of completing the program implementation by the end of the 52 week period after its initiation.

Performance Management

In order to ensure that implementation is on track to meet the Act’s net-zero greenhouse gas emissions goal, it is imperative that the efficacy of this program is closely tracked. The administration of the program will be evaluated based on three metrics:

- The number of new grant applications,
- The number of new landowners and land managers enrolled
- The program’s adherence to the budget.

Budgetary, administrative, and programmatic metrics will be evaluated at the end of 2023 to ensure that the program is meeting its goals and determine what adjustments, if any, need to be made to ensure the program’s success. These indicators will alert decision-makers as to whether or not the program is being successfully advertised and adopted among the farming and ranching community. In terms of environmental impact, the program’s success will be judged based on three additional criteria:

- **Soil health:** key metrics such as soil sedimentation rates, nutrient

concentrations, and water retention will offer measures of the health of terrestrial ecosystems and can easily be tracked using existing NRCS protocols.

- **Climate impacts:** Soil carbon will be used to track the program’s capacity to mitigate greenhouse gas emissions, as well as the efficacy of livestock feeding technique recommendations.
- **Environmental impacts:** Proxy indicators of environmental health such as species abundance and biodiversity will be used to gauge the positive and negative environmental changes associated with the adoption of this program.

This data will then be collated and summarized by either a Rangeland Specialist or Grazing Lands Specialist before being reported to the State Conservationist. At the end of the funding period in 2030, a program-wide evaluation will take place in order to ensure that the Act is on track to meet its goals.

Shared Performance Management Systems

Both programs will use the same performance management systems for personnel evaluation and diversity audits. In order to effectively link organizational goals to the performance of personnel, training and guidance will be provided and supervisors will outline expectations of newly hired staff. NRCS has an existing performance management implementation policy that must be presented to new hires within the first 30 days of employment (*Performance Management Implementation Guidance for New 5 Level Performance Management System*, n.d.). Performance appraisals must be conducted by supervisors every 3 and 6 months. Critical and non-critical elements will be reviewed by using the existing NRCS 5 level performance plan in order to properly rate each employee. These elements will include job duties and responsibilities pertaining to job descriptions along with those not mentioned, like the ability to work with others and to lead. After which, constructive feedback will be given to ensure expectations are aligned with the performance. This process will be guided by the NRCS Human Resources department to ensure that all policies are followed while also offering assistance to supervisors (*Performance Management Implementation Guidance for New 5 Level Performance Management System*, n.d.).

To ensure that programs remain inclusive and diverse, each program will advance opportunities for minorities, economically disadvantaged groups, and persons with disabilities (NRCS, n.d.). Through diversity audits, programs will gauge existing diversity and determine hiring priorities moving forward. Demographics of grant applicants will also be monitored to evaluate the diversity of representation and encourage the involvement of underrepresented groups in agriculture.

The Regional Climate Council will be subject to a similar audit process. The demographics of the council representatives will be assessed to ensure diverse representation. Professional affiliations and experiences will also be taken into account to ensure that large agricultural groups will not dominate council discussions to the detriment of medium and small producers. Councils will also be audited to ensure a diversity of professions and interests are represented, including private industry, non-profit organizations, and public organizations. An annual analysis of each council's demographics will be conducted to ensure that NRCS is meeting the diversity requirements.





4 CONCLUSIONS

In order to rise to the challenges posed by rapid climate change, the Agricultural Resilience Act sets the target of cutting emissions from the agriculture sector in half by 2030 and achieving net-zero no later than 2040. The actions necessary to meet this ambitious goal will entail profound changes and have broad impacts on agricultural producers, consumers, and the biosphere. The programs described in this report seek to bring together stakeholders from a wide variety of backgrounds with the intention of initiating new dialogues so that future agricultural policies continue to incorporate local and regional voices, many of which have failed to be included in past decision-making processes. This is perhaps most evident in the choice to implement a set of Regional Climate Advisory Councils, which has the express mandate of integrating information

about local and regional conditions and climate risks into national NRCS policy.

With the capacity to spend approximately \$150 million per year until 2030 on alternative grazing practices and new installations for manure management alone, the programs described in this report have the potential to facilitate dramatic reductions in the emissions of harmful greenhouse gases and begin the long process of increasing soil carbon sequestration in the United States. The Agricultural Resilience Act is a comprehensive piece of legislation that promises to build on existing policies, programs, and structures to transform our agricultural system into a mode that is more beneficial to local environments, communities, and the climate.

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APPENDIX A. MASTER CALENDAR

Federal Program Master Calendar																																																							
		Weeks																																																					
Phases	Task Manager	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
Planning	NRCS National HR			NRCS National assesses staffing, determines hiring criteria for regional councils and program managers																																																			
Hiring	NRCS National HR										NRCS National completes hiring cycle for program managers and councilmembers																																												
Implementation	Council Program Managers																																																						
	Regional Conservationists																																																						
	Council Program Managers																																																						
Review	Regional Conservationists																																																						
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APPENDIX B. BUDGETS

Federal Program

Regional Climate Advisory Council		Cost	Total
Salaries	Operations Manager (GS 11)	\$72,000	\$144,000
	Program Manager (GS 11)	72,000	
Fringe benefits	Health Insurance (+30%)	43,200	46,000
	Basic Benefit Plan (+1%)	1,440	
	Thrift Saving Plan (+1%)	1,440	
GRAND TOTAL FEDERAL			\$190,000

State Program

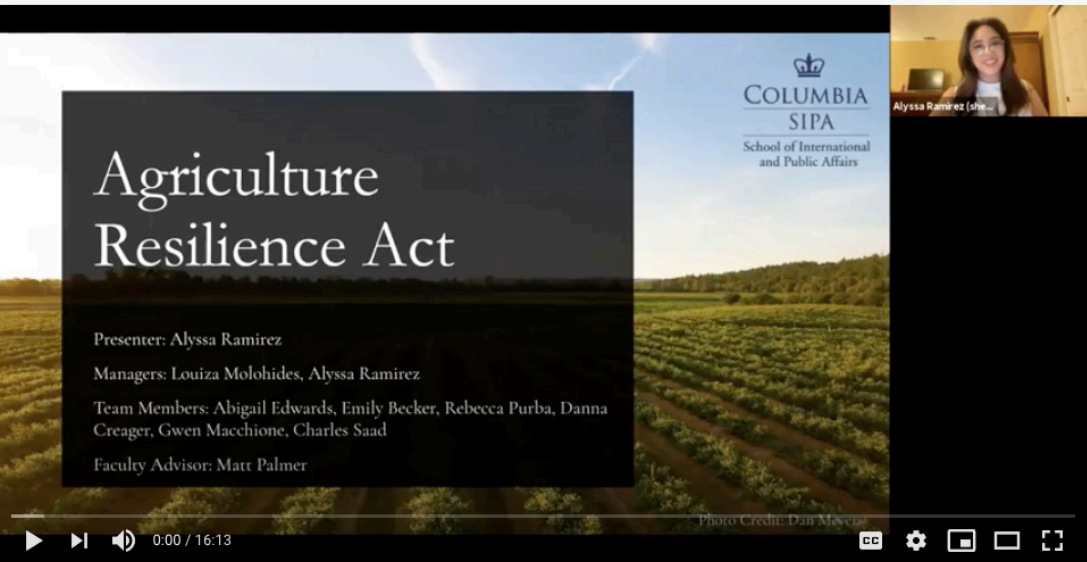
Alternative Manure Management		Cost	Total
Salaries	Agricultural Engineer Supervisor (GS 12)	\$77,000	\$232,000
	Assistant for Field Operations (GS 10)	59,000	
	Grant Technician (GS 8)	48,000	
	Administrative Support (GS 8)	48,000	
Fringe benefits	Health Insurance (+30%)	70,000	74,000
	Basic Benefit Plan (+1%)	2,000	
	Thrift Saving Plan (+1%)	2,000	
Other expenses	Travel and meals	5,500	16,500
Grants	Awards for farmers: install and maintain equipment		727,500
Subtotal			\$1,050,000
Conservation of Private Grazing Land		Cost	Total
Salaries	Rangeland Management Specialist (GS 11)	\$64,000	\$176,000
	Grazing Land Management Specialist (GS 11)	64,000	
	Administrative Support (GS 8)	48,000	
Fringe benefits	Health Insurance (+30%)	53,000	56,400
	Basic Benefit Plan (+1%)	1,700	
	Thrift Saving Plan (+1%)	1,700	
Other expenses	Travel and meals	5,500	16,500
Grants	Research, demonstration, and outreach		101,100
Subtotal			\$350,000
GRAND TOTAL STATE (VT)			\$1,400,000

Midterm Briefing
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Agriculture Resilience Act - Rebecca Purba

Final Briefing
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Agriculture Resilience Act- Alyssa Ramirez



AGRICULTURE RESILIENCE ACT

Workshop in Applied Earth Systems Management II
Fall 2020