U.S. Department of Agriculture
Natural Resources Conservation Service

NOTICE OF GRANT AND AGREEMENT AWARD

1. Award Identifying Number	2. Amendment Number	3. Award /Project Period	4. Type of award instrument:
NR233A750004G035		Date of final signature - 04/24/2028	Grant Agreement

5. Agency (Name and Address)	6. Recipient Organization (Name and Address)
USDA Partnerships for Climate-Smart Commodities c/o FPAC-BC Grants and Agreements Division 1400 Independence Ave SW, Room 3236 Washington, DC 20250 Direct all correspondence to FPAC.BC.GAD@usda.gov	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION 625 BROADWAY, 10TH FL ALBANY NY 12233-4900 UEI Number / DUNS Number: ZECZWASEN594 / 806780912 EIN:

7. NRCS Program Contact	8. NRCS Administrative Contact	9. Recipient Program Contact	10. Recipient Administrative Contact
Name: JOHN ANDERSON	Name: LYN MILLHISER	Name: Jason Drobnack	Name: Vicky Wagenbaugh
(b)(6)			

11. CFDA	12. Authority	13. Type of Action	14. Program Director
10.937	15 USC 714 et seq	New Agreement	Name: Fiona Watt (b)(6)

15. Project Title/ Description: Expands markets for climate-smart forestry and all agriculture in New York and supports farmer and forester implementation and monitoring of climate-smart practices.

16. Entity Type: A = State government

17. Select Funding Type

Select funding type:	☒ Federal	☒ Non-Federal
Original funds total	60,000,000.000	11000000.00
Additional funds total	$0.00	$0.00
Grand total	60,000,000.000	11000000.00

18. Approved Budget

Personnel	$0.00	Fringe Benefits	$0.00
Travel	$0.00	Equipment	$0.00
Supplies	$0.00	Contractual	$9,000,000.00
Construction	$0.00	Other	51,000,000.000
Total Direct Cost	60,000,000.000	Total Indirect Cost	$0.00
		Total Non-Federal Funds	11000000.00
		Total Federal Funds Awarded	60,000,000.000
		Total Approved Budget	71,000,000.000

This agreement is subject to applicable USDA NRCS statutory provisions and Financial Assistance Regulations. In accepting this award or amendment and any payments made pursuant thereto, the undersigned represents that he or she is duly authorized to act on behalf of the awardee organization, agrees that the award is subject to the applicable provisions of this agreement (and all attachments), and agrees that acceptance of any payments constitutes an agreement by the payee that the amounts, if any, found by NRCS to have been overpaid, will be refunded or credited in full to NRCS.

Name and Title of Authorized Government Representative KATINA HANSON Acting Senior Advisor for Climate-Smart Commodities	Signature KATINA HANSON Digitally signed by KATINA HANSON Date: 2023.05.01 08:11:38 -05'00'	Date
Name and Title of Authorized Recipient Representative NANCY LUSSIER Division Director	Signature Nancy Lussier Nancy W. Lussier Director of Management and Budget	Date Digitally signed by Nancy Lussier Date: 2023.04.28 08:52:53 -04'00'

NONDISCRIMINATION STATEMENT

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

PRIVACY ACT STATEMENT

The above statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. Section 522a).

Statement of Work

Purpose

The purpose of this agreement, between the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) and New York State Dept. of Environmental Conservation, is to build markets for climate-smart commodities and invest in America's climate-smart producers to strengthen U.S. rural and agricultural communities.

Objectives

The objectives of this project are to support the production and marketing of climate-smart commodities by providing voluntary incentives to producers and landowners, including early adopters, to implement climate-smart agricultural production practices, activities, and systems on working lands; measure/quantify, monitor and verify the carbon and greenhouse gas (GHG) benefits associated with those practices; and develop markets and promote the resulting climate-smart commodities.

Budget Narrative

The official budget summarized below and described in the attached Budget Narrative will be considered the total budget as last approved by the Federal awarding agency for this award.

Amounts included in this budget narrative are estimates. Reimbursement or advance liquidations will be based on actual expenditures, not to exceed the amount obligated.

TOTAL BUDGET $71,000,000

TOTAL FEDERAL FUNDS $60,000,000
PERSONNEL $0
FRINGE BENEFITS $0
TRAVEL $0
EQUIPMENT $0
SUPPLIES $0
CONTRACTUAL $9,000,000
CONSTRUCTION $0
OTHER $51,000,000 (includes PRODUCER INCENTIVES $0)
TOTAL DIRECT COSTS $60,000,000
INDIRECT COSTS $0

TOTAL NON-FEDERAL FUNDS $11,000,000
PERSONNEL $0
FRINGE BENEFITS $0
TRAVEL $0
EQUIPMENT $0
SUPPLIES $0
CONTRACTUAL $0
CONSTRUCTION $0
OTHER $11,000,000 (includes PRODUCER INCENTIVES $0)
TOTAL DIRECT COSTS $0
INDIRECT COSTS $0

All indirect costs were waived.

When equipment is purchased with Federal funds it must be used until no longer needed as described in the General Terms and Conditions and 2 CFR 200. If the residual value of the equipment is $5,000 or more at the time it is no longer needed, the recipient must request disposition instructions. The disposition instructions may direct the recipient to: 1) sell the equipment and return a proportionate share of the proceeds to the Federal agency; 2) transfer title to another eligible entity identified by the Federal agency; or 3) keep the equipment if desired and compensate the Federal agency for its proportionate share of the value.

Responsibilities of the Parties:

If inconsistencies arise between the language in this Statement of Work (SOW) and the General Terms and Conditions attached to the agreement, the language in this SOW takes precedence.

RECIPIENT RESPONSIBILITIES

Perform the work and produce the deliverables as outlined in this Statement of Work and attachments.

Ensure Paperwork Reduction Act (PRA) clearance is obtained prior to conducting data collection from producers or other project participants, including data collection performed by subrecipients.

Comply with the applicable version of the General Terms and Conditions.

Submit reports and payment requests to the ezFedGrants system as outlined in the applicable version of the General Terms and Conditions. Reporting frequency is as follows:

Performance Reports: Quarterly

SF425 Financial Reports: Quarterly

Detailed Progress Report: Quarterly
(The detailed progress report is in addition to the performance and financial reports referenced above and described in the general terms and conditions)

Expected Accomplishments and Deliverables

See attached Benchmarks Table and associated Project Narrative.

Resources Required

See the Responsibilities of the Parties section for required resources, if applicable.

Milestones

See attached Benchmarks Table and associated Project Narrative.

GENERAL TERMS AND CONDITIONS

Please reference the below link(s) for the General Terms and Conditions pertaining to this award:
https://www.fpacbc.usda.gov/about/grants-and-agreements/award-terms-and-conditions/index.html

Attachments:
Budget Narrative
Project Narrative
Benchmarks Table
Climate-Smart Practices List and Limitations
Data Dictionary
Climate-Smart Specific Terms and Conditions

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NYS Connects: Climate Smart Farms and Forests Project Narrative

Part 1: Executive Summary

This project will leverage the New York State (NYS) Climate Leadership and Community Protection Act (hereinafter referred to as the "Climate Act") that requires a 40% reduction in GHG by 2040, 85% by 2050 and has a goal of net neutrality by 2050. The project will immediately fund landowners to implement multiple Climate Smart Agriculture and Forestry (CSAF) practices by building on current state programs. For project implementation we will use the regional Cornell Cooperative Extension (CCE) climate focused staff, Soil and Water Conservation District (SWCD) staff and state foresters that already have working relationships with landowners. We will identify and mitigate social and behavioral barriers using a behavioral systems approach to improve the reach of CSAF implementation programs, especially among underserved and minority populations. A combination of new and well-developed tools will be used for measurement/quantification, monitoring, reporting and verification (MMRV) of carbon benefits of implementation of CSAF practices. This data will subsequently be utilized through annual assessments and continuous improvement processes to refine practices and programs, reduce costs, and mitigate greenhouse gas (GHG) emission impacts. Finally, with unique partnerships among the financial, manufacturing, and retail industries we will identify and overcome key barriers in climate smart market development and increase the connections between landowners and companies that are demanding climate smart commodities. This proposal will also help accomplish federal targets by supporting food security as climate change intensifies, developing markets that have limited time to adjust, and addressing climate impacts on a global scale.

A. **Contact Information**

NYS Department of Environmental Conservation

B. **List of Project Partners** (only points of contact listed)

NYS Department of Environmental Conservation Division of Lands and Forests (DEC DLF): Jason Drobnack **; NYS Agriculture and Markets (AGM)**: Brian Steinmuller; **Cornell College of Agriculture and Life Sciences (Cornell CALS):** Yiqi Luo**; State University of New York College of Environmental Science and Forestry (SUNY ESF)**: Timothy Volk**; Syracuse University:** Jay Golden**; NYS Soil and Water Conservation Committee (SWCC)**: Dale Stein**; County Soil and Water Conservation Districts (SWCD)**: Dustin Lewis**; New York State Energy Research & Development Authority (NYSERDA)**. Ziggy Majumdar**; Evidn:** John Pickering, **Michigan State University (MSU):** Lauren Cooper**; Mercy Works:** Joelle Harleston

C. **List of underserved/minority-focused project partners.** Cervantes Farm, Cornell Small Farms Equitable Farm Futures Initiative & Veterans FarmOps program, Cornell Cooperative Extension Harvest NY urban ag team, International Refugee Committee NY, Rosario

Brothers Farm, Snug Harbor Cultural Center & Botanic Garden, Mercy Works, Institute for Veterans and Military Families at Syracuse University, West Haven Farms

D. Compelling need for the project

The Climate Act requires some of the most aggressive climate targets in the nation and is in line with Intergovernmental Panel on Climate Change's (IPCC) recommendations to minimize damages from climate change. The Climate Act provides policy certainty and ensures that this project will have immediate impact and will accelerate the development of CSAF practices, verification and monitoring systems and markets, development of climate smart commodities and ensure continuation for decades.

USDA ranked NYS #8 nationally for direct jobs in the Biobased Products Industry prior to implementation of the Climate Act. The state's biobased economy added $9.236B of total value and supported over 100,630 total jobs, with forest products, agriculture, and biobased chemicals and textiles leading the way.[1] In addition to contributing to the 85% economywide GHG reductions, agriculture and forestry will be the main source of offsets for the remaining 15% of NYS emissions by 2050. This will require the forest and agriculture sectors to sequester 60 million metric tons of carbon per year by 2050, more than double current sequestration rates.

To meet these ambitious targets, NYS's farmers and forest landowners will need to reduce emissions while boosting carbon sequestration in soils and trees. Increases in funding and support for CSAF planning, reporting, benchmarking, and tracking is needed to meet these ambitious targets, along with developing market-based systems to incentivize CSAF commodities. Scalability, farmer, landowner and consumer confidence, and increasing farmer diversity, equity and inclusion (DEI) are essential to meeting these statewide goals. Forests cover 63% of NYS (18.6 million acres) and 73% of NYS's forests are privately owned.[2] Of these privately-owned forests, only 27% received professional advice in the past 5 years, 18% had a written management plan, and 9%[3] were under professional forest management.[4] This project will accelerate improved forest management, expand forest lands and keep the state's forests as forests so NYS can be a model for other states. The project will provide confidence that GHG emissions reductions, carbon sequestration rates, and other benefits are verifiable, which will drive large scale purchases and preferred procurement programs of Climate Smart Commodities by NYS government, corporations, and others.

NYS will provide $11M in matching funds during this project, and additional funds will be leveraged by awardees, sub-recipients, and partners throughout the state. Included as match are state financial assistance grant programs for landowners through Regenerate NY (DEC) and the Climate Resilient Farms (CRF, AGM) programs. We anticipate that leverage funds will increase as implementation of the Climate Act accelerates. One example of leverage funds is through our partnership with NYSERDA. NYSERDA has existing and planned programs supporting NYS's bioeconomy designed to help achieve the Climate Act targets such as the Carbon to Value (C2V) initiative that supports startups in this space. NYSERDA plans to release solicitations to support innovation in products and fuels derived from CSAF

to accelerate decarbonization. In addition, the NYS Green Bank investment fund will also support similar efforts.

E. Approach to minimize transaction costs associated with project activities

This project minimizes transaction costs associated with direct implementation by using the state's existing agricultural and forestry staff and programs through New York State's Departments of Environmental Conservation and Agriculture and Markets. This allows the project to immediately provide funds to landowners to implement CSAF practices with little new project overhead and administrative costs. As part of an adaptive management and continual improvement process, the project will use information from Evidn's behavioral analysis, through SUNY ESF, and from on-the-ground communication with landowners to identify and reach underserved farmers, landowners and disadvantaged communities. In addition, MMRV collection and analysis on CSAF practices by SUNY ESF and Cornell University will allow these programs to maximize the GHG reduction and sequestration benefits per dollar of funds expended. The MMRV tools will increase accuracy and reduce monitoring costs, supporting market surety for climate smart commodities and providing a benchmarking framework for the Climate Act implementation over the next 30 years.

F. Approach to reduce producer barriers to implementing CSAF practices for the purpose of marketing climate-smart commodities

The project team includes behavioral scientists that have worked in a range of agriculture and natural resources systems, including through SUNY ESF's partnership with Evidn and through marketing development by Syracuse University. They will use an established behavioral systems analysis to identify behavioral and social barriers to the adoption of climate smart practices and commodities among landowners, supply chain companies and consumers, with a focus on forest-based systems. The results of these analyses will be used to inform and target financial assistance for implementation of CSAF practices to help landowners overcome existing barriers to increase program participation.

Cornell CALS, through the Small Farms Equitable Farm Futures Initiative and FarmOps (Veterans) Program will create an initiative with underserved farm partners, developing a suite of CSAF practices appropriate for small, diverse farms. Specific culturally and language appropriate education materials and outreach strategies will be developed for several underserved audiences, that have traditionally been excluded including Latina/o/x, BIPOC, veteran, New American, indigenous nation and urban farmers. One on one coaching, technical assistance, plus peer-to-peer learning circles for underserved farmer communities will facilitate engagement, reduce barriers and increase adoption of CSAF BMP's. Trainers recruited from underrepresented, veteran, and small-scale farmers, including urban growers, will enable greater engagement, equitable participation and reduce barriers to CSAF implementation. To overcome financial barriers for limited resource and underserved farmers/landowners, direct payments will be provided rather than traditional reimbursement for project costs. SWCDs are uniquely set up to pay contractors and project suppliers directly rather than reimbursement after practice implementation. SWCDs currently use the

established Agricultural Environmental Management (AEM) framework to more efficiently prioritize and coordinate efforts and connect farmers to financial resources.

The established NYS Grown & Certified program makes it easy for consumers to identify local, safely handled, and environmentally responsible agricultural products. Participation in NYS Grown & Certified brings brand recognition and market access. This existing program will facilitate marketing of products grown with climate smart agricultural practices across NYS including urban growers and underserved producers.

G. Geographic Focus

While this proposal focuses on NYS, its results and lessons learned will facilitate the rapid adoption of climate smart practices and develop markets in other states. We will share results with multistate organizations (e.g., Northeast State Foresters Association, National Alliance of Forest Owners, USDA Northeast Climate Hub, National Association of State Departments of Agriculture, National Association of State Conservation Agencies, National Association of Conservation Districts, National Conservation District Employees Association), LGU systems, national companies and institutions, and within the USDA Partnership Network.

H. Project management capacity of partners, including a description of existing relationship with and/or prior experience working with producers or landowners, promoting climate-smart activities and marketing climate-smart commodities

Many of the partners have established effective working relationships over the past 2.5 years implementing the Climate Act. NYSDEC, NYSAGM, NYSSWCC and NYSERDA all have deep experience developing and implementing agriculture and forestry programs with producers and landowners, with Cornell CALS and SUNY ESF bringing science-based research-driven MMRV and barriers analysis into the process. SWCDs, and DEC forestry staff are front line points of contact for producers and landowners and will be critically important in rolling out, implementing, and monitoring programs. Cornell's Equitable Farm Futures Initiative has a Spanish First farmer education and training focus, with one-on-one trainings available to LatinX farms. Cornell hosts and trains a network of Master Forest Owner volunteers who will be leveraged to serve smaller scale forest landowners.

Part 2: A plan to pilot climate-smart agriculture and/or forestry practices on a large scale

NYS's existing agricultural (CRF) and forestry (Regenerate NY) cost-share programs are oversubscribed by landowners. Below we outline existing climate smart agriculture practices (Part 2.1), followed by a plan to pilot climate smart forestry practices (Part 2.2). In addition to these existing practices, other practices that demonstrate GHG benefits will be incorporated as part of the continual improvement process.

Part 2.1 Agriculture

A. Description of CSAF practices to be deployed

We will implement an approach that expands existing programs and develops new pilots for improvement towards ambitious targets in the state for GHG reduction and carbon sequestration. Climate-smart agriculture implementation programs will be led by the Department of Agriculture and Markets. The four key areas include: Alternative Manure Management, Adaptive Feed Management, Enhanced Weathering, and Climate Smart Ag and Forestry Practices.

i. **Alternative Manure Management** – The state's existing Climate Resilient Farming (CRF) Program will be utilized to expand the resources offered to cost-share alternative manure management systems. The goal is to reduce methane emissions from livestock operations including manure management through the collection and destruction of methane or methane avoidance. Projects will demonstrate a reduction or avoidance in methane emissions.

Manure storages which reduce daily spreading by farmers have been utilized to meet water quality goals. Methane is produced when volatile manure solids are stored in wet, anaerobic conditions within a storage. To address this source of methane on farm we have focused on 2 key methane reduction strategies: methane destruction through Cover & Flare Systems and methane avoidance by Alternative Manure Management Strategies. Further, to improve quantitative data gathering, we are piloting a self-reporting/monitoring program.

i.a. Methane Destruction through Expansion of Cover and Flare Systems

Emphasis and prioritization will be given to manure storage cover and flare systems within CRF Track 1.–Agricultural waste storage cover and flare systems have the capacity to immediately impact both the GHG emissions from the farm and the farm's resiliency to major precipitation events. This CRF program will be expanded to reach greater numbers of farms for installing these systems.

For MMRV specific to the Cover & Flare mitigation strategy and complementary to existing Anaerobic Digester systems, there will be a pilot project for system monitoring and data collection to establish quantitative mitigation. Cornell will develop and deploy a novel tool for measuring methane emissions from dairy farm operations. The approach is to release a tracer gas (acetylene) at a known rate, and then measure the amount of methane above background levels relative to acetylene downstream of this release. This approach, pioneered in Europe for measuring emissions from landfills and wastewater treatment plants[1] has not yet seen widespread application for measuring emissions from dairy farms, and has not been used at all in New York State or the northeastern US. Measurements will be made for entire dairy farms, which provide a check on the MMRV estimates of methane emissions from manure systems plus enteric fermentation. Additionally, measurements will be made from anaerobic digesters and from manure storage lagoons (both uncovered and covered with flaring). This requires a physical separation of the digesters and lagoons from other methane-producing farm operations, relative

[1] Scheutz, C., Fredenslund, A.M. 2019. Total methane emission rates and losses from 23 biogas plants. *Waste Management* 97: 38-46.

to the wind at the time of measurement. Consequently, we expect to be able to make whole-farm measurements at a larger number of sites than will be possible for just the digesters and manure lagoons. The first year of this project will be devoted to developing and testing the tracer-gas approach. For years 2 through 5, we anticipate being able to make whole-farm measurements four times each year (to evaluate seasonal variation) at 12 to 15 different farms each year. For each of these field-excursions, we will measure emissions from anaerobic digesters (when present) and manure lagoons when current wind conditions allow the necessary physical separation.

Cornell will simultaneously utilize specific methane and nitrous oxide gas analyzers with drone and meteorological station at the biogas containment system areas (i.e., anaerobic digesters and covered manure storages) and on the associated farm sites. Depending on the farm layout, this will include a perimeter measurement of the biogas containment system or whole farm site. It is uncertain that this technique can provide a measure of the total methane loss from the biogas containment system. Interference of other methane sources (i.e., dairy barn enteric fermentation) will likely be present. Individual dairy barn (natural and mechanically ventilated) measurements will be conducted to evaluate the usefulness of this measurement technique and attempt to isolate the methane source fluxes.

These MMRV approaches will facilitate the development of more accurate ability to assess agricultural methane mitigation in order to further methane reduction goals established in New York's Climate Act. In NY, methane emissions from dairy operations constitute the largest share of greenhouse gas emissions from agriculture so MMRV research and new pilot-scale incentives for methane mitigation are critical to successful adoption of CSA. Data from the methane measurement approaches will be shared and incorporated into the overall MMRV data analysis strategy.

i.b. Pilot to **Pay for Methane Monitoring and Reporting** – A pilot project will be developed to incentivize data monitoring and collection with a goal to track methane destruction through climate smart practices for manure management. The program will incentivize farmers with manure storage cover and flare systems and existing anerobic digester systems (ADS) to measure, track, and report methane destruction. Funds received by the farm will help support system maintenance and improvement costs which can be obstacles for the farm. This pilot will help to measure and report actual methane destruction to evaluate current GHG reduction estimates from cover and flare and ADS systems. Funding will NOT be spent on construction of ADS. Enrollees will receive data entry payments for monitoring and reporting on system outputs to better track system efficiencies.

i.c. Methane Avoidance through Eligible Manure Management Practice Systems

By improving water saturated manure system operations or by keeping manure drier, one can reduce the production of methane. The following manure management practices, from the NYS Ag BMP Catalogue which follows NRCS Conservation Practice Standards for manure collection/separation and storage/treatment methods are currently incentivized through CRF. Practice systems described are guidelines and not an exclusive list. Projects may propose

complete systems or components of a system. The following manure management practices, i.e., combinations of manure collection/separation and storage/treatment methods are currently incentivized through CRF: Waste Storage and Transfer System, Manure and Agricultural Waste Treatment System, and Nutrient Management System – Cultural all have BMPs in common.

Eligible BMPs include:

- Roofs and Covers (NRCS 367)
- Waste Transfer (NRCS 634)
- Pumping Plant (NRCS 533)
- Waste Treatment (NRCS 629; includes the flare component and waste processing and nutrient recovery systems)
- Waste Separation Facility (NRCS 632; including solid-liquid separation equipment)
- Either the installation of a new solid separation system at a dairy or livestock operation that does not currently employ solid separation, or the installation of a new solid separation system with significantly higher separation efficiently than the existing solid separation technology may be eligible
- Pasture-based management and Prescribed Grazing System
- Pasture-based management projects must currently manage/store some manure in wet/anaerobic conditions and introduce new practices that reduce the quantity of manure management under such conditions.
- Compost Bedded Pack (NRCS 317/313)
- Compost Facility (NRCS 317)
- Bedding Alternatives to sand for organic bedding (infrastructure related to the barn/stalls) Feed Management (NRCS 592)

~~iii.~~ii. **Adaptive management for methane and nitrous oxide reductions from Livestock Feed Systems–** Incentives will be provided to support farmer's making use of Cornell's Net Carbohydrate and Protein System (CNCPS) tool to predict requirements, feed utilization, animal performance, and nutrient excretion for dairy and beef cattle. This tool integrates prediction equations for GHG emissions into field-usable models to provide a tool for producers and nutritionists to consider GHG emissions during the diet-formulation. Incentivizing use of this tool will help integrate GHG emissions into the decision-making process for feeding strategies and support data collection for continual improvements. Enrollees will implement their NMP, keep necessary records, and receive incentive payments to support continual implementation.

- Use of Precision Feed Management tools (i.e., Cornell CNCPS - https://cals.cornell.edu/animal-science/outreach-extension/publications-resources-software/cornell-net-carbohydrate-and-protein-system
- Feed Management (NRCS 592)

Feed Additives to modify Enteric Methane Emissions

This proposal is not intending to fund any projects involving feed additives related to the reduction of methane from enteric fermentation.

iii. **Small scale pilot program for Enhanced Weathering**

Cornell will conduct one small-scale on-farm trials on NY's first certified regenerative agriculture farm, Kreher Family Farms which specializes in organic field crops and sustainable egg production. The trial will examine the efficacy of rock dust as a scalable carbon dioxide removal technology, with co-benefits for crop yields and soil health. The goal is to gather data which can be utilized within the further development of MMRV tools in NY and beyond and can contribute to the development of EW specific practice standards development by NRCS-NY. Application and measurement will be consistent with existing NRCS Soil Carbon Amendment practice standard for compost, biochar, and other potential soil amendments. The Paris Agreement (PA) implementation recommends carbon emission reduction from forest and agriculture sectors to sequester more carbon per year. For example, an increase by 0.4% parts per thousand of carbon sequestering per year will capture extra 4 giga tons annually[2]. To meet such targets, New York's farmers will need to reduce emissions while boosting carbon sequestration in soils. Carbon sequestration can be achieved via multiple pathways, including through both organic and inorganic soil amendments. In the case of alkaline rock dust, which is produced as a by-product of normal basalt mining operations, estimates suggest that its application to the world's farmland soil could scale to billions of tons of carbon dioxide removal annually[3]. However, the real-world outcomes of enhanced weathering (EW) are yet to be full examined, neither have trials occurred sufficiently in working farms to understand both issues and opportunities.

Cornell will focus efforts on field trials across multiple acres of rock dust amendments, combined with our existing studies, which span more than 100 acres of trials in California, New York, and Montreal. Cornell will measure carbon removal in the three years of field deployment and compare them to control conditions and we will examine, in collaboration with the Kreher Family Farm, yield and soil health benefits. Rock dust will be sourced two different geological provinces will be applied and tested during the years 2024-2026. Financial compensation for farmer's land use will be provided. Data gathered will be implemented for use in the MMRV portion of this project, as well as shared with the scientific community and policy makers through scientific meetings, policy briefs and peer reviewed journals, along with project partners in NY and within the USDA and NRCS network.

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Schleussner, Carl-Friedrich. "The Paris Agreement – the 1.5 °C Temperature Goal". *Climate Analytics*. Retrieved 8 January 2023.

[3] Beerling, D.j., Leake, J.R., Long, S.P., Scholes, J.D., Ton, J., Nelson, P.N., Bird, M., Kantzas, E., Taylor, L.L., Sarkar, B., Kelland, M., DeLucia, E., Kantola, I., Muller, C., Rau, G.H., and Hansen, J. 2018. Farming with crops and rocks to address global climate, food and soil security. Nature Plants, 4, 138-147. https://doi.org/10.1038/s41477-018-0108-y.

iv. **Adoption of Climate Smart Practices** – The NYS Department of Agriculture and Markets and the NYS Soil and Water Conservation Committee administer the Climate Resilient Farming (CRF) Program which will be utilized to expand the resources offered to landowners to cost-share soil health management systems. Greatly increasing landowner adoption of agroforestry and silvopasture practices, riparian buffers, perennial crops, soil carbon sequestration technologies, and other relevant soil health and pasture management practices. In addition to providing a carbon sink and GHG mitigation, these practices provide ecosystem co-benefits. Incentivizing Climate Smart Agriculture and Forestry Practices will encourage long term adoption. Cornell will work with the Department specifically on the holistic integration of NRCS practice standards applicable to farm woodlot regeneration and agroforestry by assisting in the development of an agroforestry system for cost-share through the CRF program and utilizing LIDAR tools to actively measure, monitor, report and verify carbon sequestered through biomass, forestry regeneration, and silvopasturing.

The Climate Resilient Farming (CRF) Program currently provides cost-share for soil health systems. With additional funds, accelerated adoption of climate smart agricultural practices will be achieved by offering support to landowners and urban agriculture using set rates for practices in the NY Soil and Water Conservation Committee's Soil Health Policy. Practice systems described are guidelines and not an exclusive list.

Soil Conservation Systems provide increased water storage and use tilling practices and vegetative cover that reduce sheet/rill erosion. These practices create a first barrier against flows that will, in a storm, eventually be concentrated and reach destructive volumes/velocities. Some BMPs listed under this system are:

- Pasture and Hay Planting (NRCS 512)
- Conservation Crop Rotation (NRCS 328)
- Conservation Cover (NRCS 327)
- Contour Farming (NRCS 330)
- Cover Crop (NRCS 340)
- Residue and Tillage Management Practices (NRCS 329, NRCS 345)
- Mulching (NRCS 484)
- Strip Cropping (NRCS 585)
- Soil Carbon Amendment (NRCS 808)

Agroforestry Systems may include the integration of trees and forest management into a farming system. BMPs listed under this system are:

- Tree/shrub Establishment and Preparation (NRCS 612 and NRCS 660)
- Structures for Wildlife (NRCS 649)
- Conservation Cover (NRCS 327)
- Critical Area Planting (NRCS 342)
- Alleycropping (NRCS 311)

Silvopasture Systems establish desired trees and forages on the same land unit. BMPs listed under this system are:

- Silvopasture (NRCS 381)
- Prescribed Grazing (NRCS 528)
- Tree/shrub Establishment and Preparation (NRCS 612 and NRCS 660)
- Forage and Biomass Planting (NRCS 512)
- Upland Wildlife Habitat Management (NRCS 645)

Prescribed Rotational Grazing Systems enhance soil health by providing more perennial pasture. BMPs listed under this system are:

- Prescribed Grazing (NRCS 528)
- Forage and Biomass Planting (NRCS 512)
- Fence (NRCS 382)
- Stream Crossings (NRCS 578)

Riparian Buffer Systems include components to slow down and soak in water in the event of a flood. BMPs listed under this system include:

- Riparian Forest Buffer (NRCS 391)
- Riparian Herbaceous Cover (NRCS 390)
- Tree/shrub Establishment and Preparation (NRCS 612 and NRCS 660)
- Fence (NRCS 382)
- Stream Crossings (NRCS 578)

Project Solicitation for Direct Assistance to Landowners

A Request for Proposals (RFP) will be utilized to administer cost-share assistance. Project proposals for direct assistance to landowners must go through the NYS Agricultural Environmental Management (AEM) framework for assessment and planning. Cost share funds will be provided through local Soil and Water Conservation Districts (SWCD) for the implementation of Best Management Practice (BMP) Systems. SWCDs provide technical assistance and grant administration for the farm.

Competition

Proposals submitted for cost-share assistance will be evaluated and ranked. Each proposal will be scored based on the following criteria:

- GHG Emission Reduction and Resiliency
- Adequate Scope of Work
- Budgeting and Cost Effectiveness

Evaluators from advisory agencies of the SWCC will record proposal scores in each of the scoring categories. The scores of the evaluators will be aggregated to make up the proposal's grand total

score. Proposals will then be ranked by their grand total score from highest to lowest to make up the Ranked List for awards.

The NYS Soil and Water Conservation Committee (SWCC) through adoption of a written resolution, will authorize funding for projects until the scoring threshold has been reached or available funds are exhausted. Consideration will be given to any provisions governing or restricting the use of the available funds. The resolution shall be made available as part of the SWCC official meeting minutes. The SWCC shall notify in writing those SWCDs selected for funding.

Eligible Expenses for Direct Assistance to Farmers

Projects proposed for cost-share assistance will have the following expenses eligible for reimbursement.

- Personal services for contract administration
- Outreach and technical assistance costs for soil health training, etc.
- Architectural, engineering, consultant, and legal services
- Best Management Practice system implementation costs
- Other direct expenses related to implementation (*e.g.* funding for cultural resource impact determinations for ground disturbing BMPs, custom application services, equipment directly related to the function of the BMP)
- **Equipment** - assistance payments may only be used to cover the lease or purchase of equipment that is directly related to the function of the BMP being implemented.
- **Per Unit Rates** - Certain BMPs and/or BMP components are eligible for per acre reimbursement rates based on the SWCC Soil Health Policy. Soil Health and manure tests are also listed as set rates and can be included. The SWCC takes into consideration the NRCS EQIP rates when setting state per unit rates.

Project Payments & Procurement

The local Soil and Water Conservation District (SWCD) acts as the sponsor for all cost-share projects. Once awarded funding the SWCD must have an executed funding agreement with each participating landowner prior to submitting claims for payment for implementation funds. The landowner must acknowledge and agree that they will be responsible for the total BMP implementation costs and that all state assistance payments will be made on a reimbursement basis. The funding agreement must also state that all cost overruns will be the responsibility of the landowner. The amount and source of all landowner contributions must be identified. If the source of the landowner contribution originates from a Federal or local program the amount and specific source should be identified. The landowner must also acknowledge and agree that the total amount of state assistance payments and matching funds received from Federal or local sources cannot exceed 100% of the final project costs and that state assistance payments may be reduced accordingly.

For all subcontracts with a farm landowner and/or operator involving the purchase of goods and/or services for BMP implementation projects, the SWCD shall require the landowner and/or operator

to obtain 3 written quotes for all purchases over $20,000. The SWCD shall require the landowner and/or operator to document all quotes and justify in writing any instances where purchases were not made from the lowest responsible bidder. The SWCD shall retain documentation of all purchases in a manner that is readily available for review if requested by AGM. For all other subcontracts the SWCD shall follow its own procurement policies.

Assignment of Payment

In certain instances, the SWCD can pay contractors and project suppliers directly through an assignment of payment agreement with the landowner. Therefore, removing the burden from the landowner. Upon certification of a properly constructed and implemented project, receipt of appropriate invoices, bills and other necessary documentation, and execution of all procurement forms, the SWCD will issue payments directly to the Contractor on behalf of the Landowner.

Procurement Record and Project Certification

Procurement forms are provided to SWCDs to fill out and update throughout the course of the project. To help verify project completion in accordance with proper standards project closeout forms include the following;

- Section I - Flat Rate Certification section for Soil Health Projects must be filled out and signed by the Landowner prior to implementation.
- Section II - Once quotes are obtained, they should be entered into the Price Solicitation Record and Certification section of the Procurement Record and signed by the Landowner.
- Section III - Upon project completion, the BMP Certification section of the Procurement Record must be completed and signed by SWCD personnel with appropriate approval authority, NRCS personnel with appropriate job approval authority, or a District employee that is a NYS Licensed Professional Engineer (PE). If a consultant PE is certifying the project a Consultant Engineer's Certification form must be completed and signed.

NRCS Practice Standards

The Climate Smart Practices that will be implemented by landowners are drawn from the NYS Agricultural Best Management Practices (BMP) Systems Catalogue that follows the NRCS Conservation Practice Standards (CPS). Certification of BMPs is required at project closeout to verify that practices are designed and built to standard. Including a Consultant Engineer's Certification form that is submitted for practices requiring engineering sign-off.

Lands Eligible will be in Current Ag Production

All lands included in the implementation of climate smart practices under this grant opportunity will be active in agricultural production.

Practices Involving Ground Disturbance

Some practices that will be funded under this grant opportunity may include practices that involve ground disturbance. Practices may include but are not limited to, fencing and water lines.

Concentrated Animal Feeding Operations (CAFOs)

Projects funded under this grant opportunity may include the implementation of BMPs on a CAFO. The funding of climate smart practices through the NYS Climate Resilient Farming (CRF) grant program may include the implementation of manure management and soil health practices on CAFOs.

Technical Assistance

Project proposals must have originated through the NYS Agricultural Environmental Management (AEM) framework. Agricultural Environmental Management (AEM) is a voluntary, incentive-based program available to all farmers through their local Soil and Water Conservation District. AEM supports common-sense, cost-effective, and science-based decisions to meet farm goals while protecting and conserving New York's natural resources. By participating in AEM, farmers receive technical assistance to document their environmental stewardship and further advance their positive contributions to their communities, our food and bio-systems, the economy, and the environment.

The New York State Department of Agriculture and Markets and the NYS Soil and Water Conservation Committee administer the AEM framework and associated funding programs at the state-level and Soil and Water Conservation Districts lead AEM at the local-level with farmers and conservation partners. Altogether, over a third of all farms in the state participate in AEM.

To start or continue with AEM, farmers connect with their local Soil and Water Conservation District to progress through the confidential, AEM conservation tiers, below:

- Tier 1 – Inventory current activities, interests, and potential environmental concerns of the farmer.
- Tier 2 – Document current environmental stewardship and assess and prioritize areas of concern.
- Tier 3 – Develop conservation plans addressing concerns and opportunities tailored to farm goals.
- Tier 4 – Implement plans using available educational, technical, and financial assistance.
- Tier 5 – Evaluate practices and plans for conservation and farm viability.

Nutrient Management Plan (NMP & CNMP)

Implementation of nutrient management practices will require a NMP or CNMP. Technical assistance and BMP certification are provided by the Soil and Water Conservation District for any projects involving manure application.

Feed Additives

This proposal is not intending to fund any projects involving feed additives related to the reduction of methane from enteric fermentation.

Benchmarks & Milestones

Quarterly benchmarks and milestones may include the number of projects funded, the number of completed projects, the number of BMPs implemented, and the number of acres of soil health practices implemented. Potential benchmarks and milestones may include:

- Year 1
  - Development of pilot projects
  - Development of CRF Round 8 with integrated federal funding for acceleration of practices for manure management and soil health including agroforestry.
- Year 2
  - Award CRF Round 8 projects. Key metrics will be similar to or exceed Round 6 which included an estimated:
    - 18,000 acres of cover crops
    - 29 acres of riparian buffers
    - 68,584 MTCO2 eq/yr emissions reductions proposed
  - Open solicitations for pilot projects to incentivize digital technology use and data monitoring and collection.
- Year 3
  - Contract at least 30 projects for cost-share assistance for landowners under CRF Round 8.
  - Develop CRF Round 9 to continue acceleration of practice adoption.
  - At least 20 landowners incentivized for methane reduction data collection and/or digital technology usages.
- Year 4
  - Award CRF Round 9 projects.
  - Projects in progress on at least 10,000 acres
  - At least 30 projects in progress
  - Practices implemented on at least 5,000 acres
  - At least 20 landowners incentivized for methane reduction data collection and/or digital technology usages.
- Year 5
  - At least 30 projects complete
  - At least 30 projects in progress
  - Practices implemented on at least 10,000 acres
  - At least 20 landowners incentivized for methane reduction data collection and/or digital technology usages.

Part 2.2 Forestry

A. Description of CSAF practices to be deployed

Implementation of forestry practices will occur through DEC's Regenerate NY program. Regenerate NY is an existing DEC cost-share program that reimburses landowners for climate-smart practices including: 1) afforestation/reforestation, 2) forest stand restoration to use

silviculture to stimulate forest regeneration, 3) competing vegetation control to remove aggressive or invasive plant species that interfere with forest establishment or regeneration, and 4) deer exclosures to protect seedlings and enhance regrowth. Through this program, forest landowners will be reimbursed for 80% or more of a project's cost for climate-smart forestry practices. Projects may take place on any location that is 5 acres or more where there is a need for planting or other support for natural regeneration. Implementation of Regenerate NY practices by landowners requires the involvement of a professional forester or natural resource professional during project development. Using the existing Regenerate NY program framework will allow us to immediately allocate funds to landowners for CSAF practices. A description of each of these practices is provided below.

1) Afforestation/reforestation

The goal of this practice is to establish and maintain new forests, supplement regeneration in existing forest stands, and restore forests after a natural disturbance or harvest through the planting of trees. This practice may include:

- Preparing the site for planting
- Planting seedlings on the site
- Installing and maintaining tree protection and survival materials, such as tree tubes or deer fencing
- Providing and maintaining seedling support to help ensure survival including, but not limited to watering, weeding, pruning, mowing, mulching as applicable to the site conditions
- Monitoring seedling survival and evaluating the need for replanting
- Eligible costs include purchase of bare root or containerized seedlings, tree tubes, supplies, equipment, costs for implementation

All afforestation and reforestation projects must meet the practice standards set by NRCS practices 490, and/or 612 as applicable and:

- Only trees will be planted through this program
- Seedling survival at each planting site must be at least 65% by year 3 after planting
- Tree species selected must be pre-approved by the Department according to site factors like soil type, drainage, aspect, hardiness zone, maintenance needs, and landowner goals (see approved species list; substitutions may be allowed)
- All planted hardwood seedlings will have deer protection installed
- Only viable, high-quality, and adapted plant materials should be selected from a nursery; and planting stock must conform to established seed transfer protocols within the State and comply with minimum standards accepted by the American National Standards Institute (ANSI).
- Plantings should occur at appropriate times of the year and seedlings must be well cared for prior to planting (see DEC's Planting and Caring for Your Seedlings

guide for more information:
https://www.dec.ny.gov/docs/lands_forests_pdf/tftplantmaint.pdf)

For plantings to establish new forest areas or reforest and area after a harvest or disturbance, The minimum density trees can be planted as follows:

Hardwood Plantings = Minimum of 436 trees per acre (10ft x10ft spacing)

Softwood Plantings = Minimum of 889 trees per acre (7ft x7ft spacing)

Mixedwood Plantings = Minimum of 436 trees per acre (10ft x 10ft spacing)

For supplemental tree plantings in existing forest areas, the Department will provide the number of trees or trees per acre required to adequately supplement existing regeneration.

2) Forest Stand Restoration

The goal of this practice is to regenerate forest stands currently in a degraded or otherwise unproductive condition. Approved treatments may include silvicultural methods that open the forest canopy to allow light to reach the ground. Even-aged methods may include: seed tree, shelterwood, overstory removal, strip or patch clear-cut, and uniform clear-cuts and uneven-aged methods may include group selection or a combination of these methods designed to renew degraded forest stands. This practice may include:

- Cutting trees following a silvicultural prescription for restoration
- Removal of trees from the site, if needed
- Monitoring to evaluate the need for replanting
- Eligible costs include costs for implementation

In addition, practices should meet the practice standards set by NRCS practices 666, 490, and 384 as applicable and:

- Clear cuts for a single site must be less than 40 acres
- Provided prescriptions must be followed for implementation
- Best management practice standards as defined in the New York State Voluntary Best Management Practice for Water Quality Guide-BMP Field Guide (https://www.dec.ny.gov/docs/lands_forests_pdf/forestrybmp.pdf) must be followed

The reforestation practice may be necessary in areas with low regeneration and will be required for locations with insufficient regeneration after 2 years following forest stand restoration implementation.

3) Competing Vegetation Control

The goal of this practice is to eradicate or limit the spread of native or exotic invasive plant species in forested environments which interfere with regeneration. This practice may include:

- Mechanical removal
- Chemical control using herbicide registered in New York for targeted species
- Monitoring and evaluation of regrowth of targeted competing vegetation following practice implementation to determine if follow-up treatments are needed.
    - Length of evaluation periods will depend on the woody species being monitored, proximity of propagules (seeds, branches, and roots) to the site, transport mode of seeds
    - Evaluations will occur after June 15th during the following growing season using six-foot radius sample plots, with fern and woody species evaluated separately for effectiveness of the herbicide application.
- Eligible costs include cost of supplies, equipment, costs for implementation

All competing vegetation control projects must meet the practice standards set by NRCS practices 314 and 315 as applicable and:

- Application of herbicides must be done according to the label and manufacturer's safety instructions and in compliance with all local, state, and federal laws and ordinances
- The provided herbicide application plan must be followed for implementation
- A pesticide applicator certified for a N.Y.S. Commercial Applicator Permit (Category 2) must be present during the spraying operation
- All of the designated area must be treated uniformly
- At least 80% of the target vegetation stems must be dead after the herbicide application. Where necessary, spot re-treatment should occur for individual plants or areas.
- All equipment used for mechanical removal must be cleaned with brushes, pressure washing, and other means as necessary on site prior to removal from the site

Competing vegetation control practices may need to be paired with forest stand restoration or deer protection to successfully reach desired regeneration levels.

4) <u>Deer Exclosures</u>

The goal of this practice is to protect recently established and planned regeneration of tree seedlings from herbivory by white tailed deer by preventing access to tree seedlings and saplings. This practice may include:

- Installing tree tubes to protect individual seedlings

- Installing deer fencing to protect large areas of regeneration
- Installing slash walls to protect large areas of regeneration
- Monitoring and maintaining tree tubes and/or deer fencing to ensure it remains free of deer and otherwise effective at exclusion; especially following storm and other disturbance events
- Repair or replacement of broken or removed tree tubes or fence sections including but not limited those damaged by trees, limbs, wildlife, water, erosion, and flooding.
- Eligible costs include purchase of supplies, equipment, costs for implementation

All deer exclosure projects must meet the practice standards set by NRCS practices 382 and 472 as applicable and:

- The fence design and installation must be appropriate to the site and management needs
- Fences and slash walls must be designed to a height and width to exclude deer access
- A gate or access point must be installed to allow for monitoring
- Fence design and installation must follow all federal, state and local laws and regulations

NRCS Practices which may be applicable to Regenerate NY practices

- Tree Shrub Site Preparation (NRCS 490)
- Tree/Shrub Establishment (NRCS 612)
- Forest Stand Improvement (NRCS 666)
- Brush Management (NRCS 314)
- Herbaceous Weed Control (NRCS 315)
- Access Control (NRCS 472)
- Fence (NRCS 482)

Slash walls are an innovative practice that can serve as a more cost-effective alternative to traditional deer fencing. Innovative practices such as slash wall construction does not have a comparable NRCS practice standard. Standards were taken from research and technical guidance developed at Cornell's Arnot Forest and will be updated at new information becomes available.

Costs for equipment purchase or rentals may be eligible for grant reimbursement, subject to DEC approval or substitution prior to grant award. Purchase of heavy equipment such as tractors, skidders, bulldozers, etc. will not be approved for reimbursement. Rentals are the preferred substitute. Costs for materials and supplies directly related to the work plan are eligible such as tree shelters, fencing, fertilizer, tools and follow up spraying. We do not anticipate equipment with a value of $5,000 or more will be purchased through this grant program

Climate-smart forestry practices offered through the Regenerate NY program may be added or improved upon based on feedback from the climate-smart forestry advisory board and surveys on behavioral response and landowner barriers conducted through SUNY ESF and Evidn. Practices that do not align with NRCS practice standards will be pre-approved by the FSA grant program managers. These natural climate solutions are projected to cost $10 – 100/ton CO2eq and we will refine these for regional forests and conditions during this project (See section 3.2A).

Currently, Regenerate NY projects are solicited through a request for applications (available at https://www.dec.ny.gov/lands/119950.html) and forest landowners apply directly, or their forester or natural resource professional submit an application for them through the NYS Grants Gateway system. Applications are reviewed and accepted on a rolling basis based on eligibility. Through this model, technical assistance is provided from the landowner's forester or natural resource professional (this technical assistance is not part of grant costs or match for the Regenerate NY program). DEC staff review each application and visit the property to determine if a project is eligible for financial assistance. Once practices are implemented, the landowner submits a payment voucher for direct reimbursement. DEC staff visit the sites to confirm practice implementation, alignment with NRCS standards, and conduct monitoring prior to payment approval. Grant funds distributed through this grant program will go towards direct financial assistance for landowners.

Current Regenerate NY program funding will be used to fund these grants within the two years of Climate Smart Commodities grant award to ensure match is provided upfront. To address access challenges for limited resource and underserved forest landowners, we will pay contractors and project suppliers directly through an assignment of payment agreement. Climate Smart Commodities funds will be used to supplement the funds in this grant program and to further expand this program by hiring contractors, as described below.

In addition to providing these cost-share financial assistance grants directly to forest landowners, we plan to expand the current model of the Regenerate NY program by hiring contractors to directly implement practices for landowners. For this, contractors will be selected through a request for proposals or invitation for bid process. Our vision for this is:

1. Landowners, foresters, and other natural resource professionals will propose projects to apply for implementation assistance
2. DEC staff will review and approve applications and conduct site visits to confirm the project's eligibility and get the landowner's commitment for the project
3. Contractors will be deployed to the site to implement the climate-smart forestry practices and maintenance
4. DEC staff will inspect and monitor the site to ensure that practice standards are met and track the success of the project

Hiring contractors to implement practices for forest landowners will reduce the upfront costs for landowners if they choose to use this option. Reducing the upfront costs for landowners will help make these projects feasible for small landowners and those in underserved communities. Costs for technical assistance by a forester or natural resource professional will be incurred by the

landowner. Any technical assistance provided by DEC staff during site visits or as part of the application review process will be incurred by DEC and will not be reimbursed by the Climate Smart Commodities grant.

B. Plan to recruit producers and landowners, including estimated scale of the project

The majority of forest land in New York has been documented as having failed or insecure tree regeneration[4], making these practices a high need to ensure climate benefits of forests, and Cooperating Foresters report a high landowner demand for assistance. The Regenerate NY program has funded 36 projects for $1,071,636 to implement practices on 1,526 acres during the first two years of this program and is currently oversubscribed with about 70% of submitted applications funded each round. We plan to use the additional funding through this opportunity to expand this program to support at least 60 climate-smart forestry projects, with practices implemented on at least 2,000 acres each year, resulting in more than 10,000 total climate-smart forestry practice acres. Within the first 2 years of grant awards so far, we have seen a break-down of projects by acreage as follows: 13% afforestation/reforestation, 15% forest stand restoration, 61% competing vegetation management, and 11% deer fencing. We expect to see a similar break-down for project acreage in the future. We expect to provide a lower funding level in the first two years and expand funding rapidly in years 3-5 of this project. Forest land in these programs will continue to sequester carbon 1.0-3.4 tons CO2eq/acre-yr faster than poorly managed forest land[5,6] and provide raw material for climate smart commodities for decades into the future.

We have received an abundance of feedback from the public and our partners that there are some key barriers to the current program including the difficulty of using the state's Grants Gateway system for landowners (the system is primarily built for municipalities) and the required up-front costs of projects to landowners due to the reimbursement nature of this cost-share program. These and other barriers have resulted in a low submittal rate of opened applications (25% round 1, 42% round 2). Due to these barriers, we expect that the current ceiling for the cost-share portion of this program to be at $1 million/year, so much of the additional practice implementation provided through this grant opportunity is expected to be carried out by contractors.

Further, we plan to conduct an analysis through a SUNY ESF and Evidn to better understand what additional barriers exist for the current Regenerate NY cost-share program and overall implementation of climate-smart forestry practices for forest landowners and foresters across the

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[4] Shirer and Zimmerman. 2010. Forest Regeneration in New York State. The Nature Conservancy. https://forestadaptation.org/sites/default/files/NYS_Regen_091410_0.pdf

[5] National Academies of Sciences, Engineering, and Medicine 2019. Negative Emissions Technologies and Reliable Sequestration: A Research Agenda. Washington, DC: The National Academies Press. https://doi.org/10.17226/25259.

[6] Volk, T.A., R. Malmsheimer, D. Kiernan, M. Eisenbies, R. Bhonagiri. 2021. Carbon Cycling and Environmental Impacts from Growing, Harvesting, and Processing Forest Biomass in New York State, NYSERDA Report Number 21-29. Prepared by SUNY ESF, Syracuse, NY. nyserda.ny.gov/publications

state, including identification strategies to best reach disadvantaged and underserved communities. The behavioral systems approach developed by Evidn has increased landowner engagement in natural resource programs by a factor of 2–3 in central NYS and Australia. This approach discovers the motivations and barriers of stakeholders, boosts participation in disadvantaged communities, and enhances the effectiveness of incentive programs using a series of steps that analyze driving and restraining forces, stakeholder mapping, and training and technical support needs. The results of this analysis will include recommendations on how to improve efforts to expand participation in disadvantaged communities in Regenerate NY. The results of this work may also suggest that improvements can be made in practice implementation, cost-share administration, how programs are explained, how technical assistance is provided and other aspects of the program in order to reduce the barriers for landowners to engage in Regenerate NY and get both the technical and financial assistance that is available. This process will be iterative during the course of the project so that a continual improvement process will be employed.

To grow our recruitment of landowners, we will also increase integration of our Regenerate NY program with other programs, such as the 480a tax law program and our DEC Forest Stewardship program as well as increase promotion of this program by Cornell Cooperative Extension, the NY Forest Landowners Association (NYFOA), master forest owners, the Society of American Foresters, Soil and Water Conservation Districts, and other groups to increase landowner awareness of this program and access to technical assistance. Although much of the integration of these programs will not be funded by the Climate Smart Commodities program and will be the responsibility of grantees, this integration and cooperation will be critical to program success. Each of these programs have established relationships with forest landowners who have a need for climate-smart forestry practices, however due to a current lack in coordination between programs, landowners may not know what is available through the Regenerate NY program. Increasing the communication, trainings, and outreach materials to forest and natural resource experts who work with landowners in these programs will increase the reach of the Regenerate NY program.

To expand awareness and encourage wider adoption of CSAF practices, especially among underserved communities and small landowners, we will develop innovative and accessible visual media through the Forest and Climate Visualization Partnership (FCVP) between MSU and SUNY ESF. We will create virtual reality visualizations of changes in forests with and without CSAF practices, allowing landowners and other stakeholders opportunities to see in a few minutes the changes in forests that take years to occur. These virtual reality tools can be used to assess managers and landowner's perceptions of CSAF practices and their likelihood to undertake them. These assessments will explore what level and type of financial incentives landowners would require to adopt CSAF practices, which in conjunction with the behavioral systems analysis, conducted by Evidn, will provide a framework to overcome barriers to participation, particularly for small and underserved landowners.

Quarterly benchmarks and milestones may include the number of projects funded, the number of completed projects, and the number of acres practices acres implemented. Potential benchmarks and milestones may include:

- Year 1
  - At least 12 projects total funded
  - Projects in progress on at least 2,000 acres
- Year 2
  - At least 25 projects total funded
  - Projects in progress on at least 4,000 acres
- Year 3
  - At least 40 projects total funded
  - Projects in progress on at least 6,500 acres
  - At least 10 projects complete
  - Practices implemented on at least 1,500 acres
- Year 4
  - At least 60 projects total funded
  - Projects in progress on at least 10,000 acres
  - At least 30 projects complete
  - Practices implemented on at least 5,000 acres
- Year 5
  - At least 60 projects complete
  - Practices implemented on at least 10,000 acres

C. Plan to provide technical assistance, outreach, and training, including who will be conducting these activities, qualifications and projected timeline

Forestry-related technical assistance, outreach, and training associated with the Regenerate NY program and associated practices will serve as leverage for the Climate Smart Commodities grant to provide a scale of benefit and contribute to the expansion of the Regenerate NY program. Direct, on-the-ground technical assistance will help identify a need for climate-smart forestry practices and help develop a plan for practice implementation (financial assistance provided by the Climate Smart Commodities grant). Technical assistance will be provided by DEC staff through the forest stewardship program, the 480-a tax law program, and site visits for the Regenerate NY program, by Cooperating Foresters, Soil and Water Conservation Districts, and hired Regenerate NY contractors. Regenerate NY contractors will be hired through a competitive RFA or IFB process following state procurement guidelines. Within the RFA or IFB, qualifications and certifications will be specified to ensure that the contractor will be able to carry out the practices as well as conduct technical assistance and outreach. To help enable this effort, DEC staff will provide annual training and coordination to these organizations on the Regenerate NY program, identifying a need for climate-smart forestry practices, and working with landowners to develop a plan.

Qualifications for technical service providers include:

- DEC forestry staff have at least a bachelor's degree in forest management or another related natural resources field including at least 24 credits in forestry-related courses. DEC forestry staff run the Regenerate NY program, sustainably manage over 800,000 acres of state forest, manage the 480-a tax law program, write stewardship plans and provide forest management advice for private landowners, and assist with urban forestry programs. DEC will ensure that Regenerate NY contractors are qualified to implement program practices.
- The Cooperating Foresters program is sponsored by DEC and provides a list of qualified foresters for those in need of forestry services. Cooperating Foresters have at least a bachelor's degree in forest management or associated discipline from an institution accredited by the Society of American Foresters and professional experience in forestry. Cooperating Foresters have voluntarily agreed to meet the standards of professional conduct and responsibilities prescribed by the Department's cooperative program and work directly with forest landowners to write stewardship and forest management plans and provide forest management advice for private landowners and work with forest landowners who participate in the 480-a tax law program.
- Soil and Water Conservation Districts provide programs and services to conserve, enhance, and protect soil and water resources across the state; including technical assistance for forest management. Soil and Water Conservation Districts run the Agricultural Environmental Management program, which often includes forest-related technical assistance such as installation and restoration of forested buffers and increasing agroforestry practices through the Agricultural Nonpoint Source Abatement and Control Program, the Climate Resilient Farming Program, and the Source Water Buffer Program.

DEC will leverage existing funds to provide training, outreach, and materials for Cooperating Foresters, Soil and Water Conservation Districts, Cornell Cooperative Extension, hired Regenerate NY contractors. the NY Forest Landowners Association (NYFOA), master forest owners, the Society of American Foresters and other groups to maximize the reach of this program.

Outreach, trainings, and technical assistance coordination will begin immediately upon receiving the grant to increase landowner engagement in the Regenerate NY program and continue throughout the grant period. Starting in year 2, after the initial behavioral system analysis assessment, we will focus additional outreach efforts on gaining participation by small landowners and landowners in disadvantaged communities.

D. Plan to provide financial assistance for producers/landowners to implement CSAF practices

As part of the Climate Act, NYS is developing a set of criteria[7] for disadvantaged communities and has identified census tracts that meet these criteria. Additionally, NYS DEC's Office of Environmental Justice works to address environmental issues and concerns that affect primarily low income and minority communities. This office and their stakeholders provide guidance and direction on how to best incorporate environmental justice into grant opportunities and program prioritization. Using this expertise, and the barrier analysis conducted through Evidn, the Regenerate NY program will reduce barriers to increase inclusion of disadvantaged communities, while finding new ways to engage these communities in CSAF practices. At least $1 million dollars of RegenerateNY funding will be targeted at these communities throughout the 5-year grant period.

E. Plan to enroll underserved and small producers, including estimated number of underserved and small producers participating and associated dollar amounts anticipated to go directly to producers, in the form of technical and financial assistance

As part of the Climate Act, NYS developed a set of draft criteria[8] for disadvantaged communities and has identified census tracts that meet these criteria (figure 1). Additionally, NYS DEC's Office of Environmental Justice works to address environmental issues and concerns that affect primarily low income and minority communities. This office and their stakeholders provide guidance and direction on how to best incorporate environmental justice into grant opportunities scoring and prioritization. DEC's Urban Forestry program also provides grant opportunities that prioritize increasing urban tree cover in disadvantaged communities. Using this expertise, the Regenerate NY program will increase inclusion of disadvantaged communities into grant scoring and outreach, while finding new ways to engage these communities in CSAF practices.

Underserved family forest owners have traditionally had low participation in forestry programs and are less likely to actively manage their property. Factors including geographic locations, size of forest holdings, and past management history all contribute to low program participation. We will use Evidn's behavioral systems analysis approach early in the program to understand barriers to participation and develop strategies to increase participation in Regenerate NY, 480 forest tax law, and urban forestry programs. At least $1 million dollars of Regenerate NY funding will be targeted at these communities throughout the 5-year grant period.

Part 3. A measurement/quantification, monitoring, reporting, and verification plan

This section outlines plans to measure, monitor, report, and verify GHG benefits from the agricultural practices (Part 3.1) and forestry practices (Part 3.2).

Part 3.1 Agriculture

[7] NYS Climate Justice Working Group. 2022. Draft disadvantaged communities criteria and list technical documentation.https://climate.ny.gov/disadvantaged-communities-criteria/

NYS has developed systems to support farms in implementing CSAF practices. We will build upon these systems and leverage ongoing Cornell efforts to develop a robust new capacity for MMRV of GHG mitigation from key commodities and CSAF practices. This approach will ensure that this project's climate benefits are real, permanent, and verifiable, and that there will be a continuous improvement process.

A. Approach to greenhouse gas benefit quantification

The COMET-Planner tool will be used to assess each CSAF practice under the CRF program. For key practices, including the pilot practice areas in methane mitigation, enhanced weathering and agroforestry, we will also use IPCC methods, empirical data collection from Cornell and SWCD staff, and other tools. This is particularly important for dairy farms since NYS is the 5th largest dairy producer in the country and dairy emissions account for over 90% of NY agricultural GHG emissions.[9] Models currently available for dairy farms include whole-farm nutrient mass balance (Cornell Nutrient Management Spear Program - NMSP) to assess changes in nitrogen balances, comprehensive ration optimization (CNCPS) to assess changes in animal feed and manure production, and a whole farm system model (RuFaS).[10] All farms receiving project funds will report non-confidential data to support the MMRV program, with appropriate data confidentiality. Examples include nutrient management practices, livestock feed and nutrition practices, livestock number and weights, crop yields and nitrogen fertilizer rates, and data on methane destruction from manure storage. Organic and inorganic carbon stock data from the Cornell Soil Health Initiative will also be used along with pilot data from enhanced weathering of rock dust described above. Detailed data on practice implementation will be collected from farms receiving project funding, and in less detail on a larger set of farms to support state scale analysis. For both livestock and crops, published data as well as data collected during the proposed project, will be used to calibrate and evaluate the results of all GHG estimation tools. For key practices such as fertilizer and manure management, the most reliable approach to estimate GHG benefits of climate smart practices will be selected, which may include a lookup table derived from results of the tools listed above, published literature[7] or developed during this project, the COMET-PLANNER, or the RuFaS whole-farm model. In all cases, the goal is to provide robust estimates of GHG benefits that account for net changes in all three key GHGs (CO_2, CH_4, N_2O), assuring that benefits are real, permanent, and verifiable.

Utilizing existing data housed at the above-mentioned Cornell programs, along with new data collected from implemented CSA practices during the project period, a new decision support tool will be created to more accurately assess carbon sequestration for farmland and GHG mitigation as a result of implemented practices. The Ecological Platform for Assimilation of Data (EcoPAD) platform, developed and scientifically validated over the past two decades and deployed primarily for research in C cycling, will be further developed to allow NYS to use the system to determine the best incentive practices that balance economic activities with GHG emissions mitigation and C sequestration to deploy future conservation practice incentives in a way that enables NYS to meet its Climate Act goals for the agricultural sector. EcoPAD utilizes a data assimilation technique, with which process-based models are trained by observational data before the models are used for forecasting reduction in GHG emission and C sequestration under

future climate scenarios or different land use practices. Data assimilation plus multiple model ensemble can greatly enhance the accuracy of model predictions of C sequestration, GHG emissions, and reduce uncertainty. In this project, we will wrap various models into EcoPad using the container-docking system. Specifically, we will wrap the core model of Comet-Planner, DayCent, and RuFaS methane model into EcoPAD for calibration via data assimilation using unique data collected from this project. Once these models are calibrated, EcoPAD will project future C sequestration and GHG reduction. Overall, EcoPAD will serve as an integrated, holistic long-lasting tool that will be utilized by NYS Agriculture and Markets to quantify GHG emissions and C sequestration in a more scientifically validated approach.

B. Approach to monitoring of practice implementation, including the anticipated number of farms and acres reached through project activities

Practice implementation will be monitored by SWCD staff, who work directly with farmers in the administration of CRF and AEM programs. All farms receiving project funding will be monitored by direct visits from SWCD staff to verify successful installation of the practice and a follow-up visit to ensure continuation after year 2 of installation. Farms needing education and training on practice deployment and one-on-one technical assistance, will receive on-site assistance from SWCD technicians. Cornell Small Farms staff and associated trainers from underserved communities will provide technical assistance to underserved farmers, along with associated SWCD technicians.

C. Approach to reporting and tracking of greenhouse gas benefits including the anticipated GHG benefits per farm, per project, per commodity produced, per dollar expended, and the anticipated longevity of GHG benefits

Reporting and tracking of GHG benefits will be conducted by NYS personnel with technical assistance from Cornell expert partners, including those who have developed and implemented the NYS system for analyzing GHG emissions from the agricultural sector and quantifying agricultural mitigation opportunities. Cornell will select a representative number and type of CSA incented farms, to measure, report, and track GHG benefits in the focus areas described above – primarily methane, agroforestry/farm woodlot restoration, and enhanced weathering. Additional data will be reported from the Cornell Soil Health Lab, which annually conducts soil health testing including measurements of inorganic and organic carbon for NYS. Reporting and tracking of results will be integrated into the EcoPAD model, which will then assist the state in aggregating results and reporting the impact of incented CSA practices in increasing C sequestration and mitigating GHG emissions.

D. Approach to verification of greenhouse gas benefits

For verification, data on changes in soil organic and inorganic carbon from existing Cornell research projects and statewide programs including the Cornell Soil Health Program will be leveraged, along with new data collected from this project for a limited number of farm sites. For agroforestry systems, Terrestrial Laser Systems (TLS) will be used for analysis of tree volume, including biomass, which will be translated into estimates of carbon stocks using published data on wood density. For methane emissions from dairy farms, on-farm measurements will be used

as described above. Carbon sequestration in soils will also be measured for the specific pilot on Enhanced Weathering. All these data will be used to evaluate model-based assessments of GHG benefits, and in the development of EcoPAD. The focus will be on quantification of the unbiased average effect of a climate-smart practice across all farms, rather than the effect for an individual farm. Therefore, site specific measurements of changes in carbon stocks or fluxes of N_2O and CH_4 will not be made on individual farms beyond those described above. This approach is suitable for a statewide program and greatly reduces the uncertainty of the assessment as well as the cost per farm. All GHG assessment methods will be reviewed by a panel of outside experts' midway through the project to assure that the best GHG quantification methods are being used.

E. Agreement to participate in the Partnerships Network

We will actively participate in the Partnerships Network and provide representatives from our team that are leading efforts in: 1) implementing CSAF practices with landowners, 2) MMRV and developing markets, and 3) tracking systems for climate smart commodities.

Part 3.2 Forestry

A. Approach to greenhouse gas benefit quantification

The MMRV plan for climate smart forestry (CSF) practices and products will include three processes: 1) forest monitoring before and after practices are implemented using terrestrial laser scanning (TLS) and traditional forest measurements, 2) use of an already developed map-based modeling platform for historic (back to 1990) and future changes in forest stocks, 3) integrated life cycle analysis and technoeconomic analysis of the entire systems from the forest through end of life of a range of climate smart commodities, and 4) development of a tool to project GHG benefits based on forest types, a range of practices, and climate smart wood product commodities. We will estimate aboveground carbon sequestration rate and storage using a combination of TLS, traditional forestry inventories, and airborne/satellite remote sensing products. TLS allows for non-destructive 3D reconstruction of forest aboveground structures at sub-centimeter resolution11 providing more accuracy. TLS-based forest inventory has more up-front equipment cost, and is less accessible to stakeholders than traditional inventory approaches but it can greatly reduce labor costs in the mid and long term. Time-lapse scanning of forest plots before and after CSF practices generates accurate estimates of aboveground volume changes at both individual-level and stand-level and refines equations that can be used to estimate larger scale carbon stock and sequestration estimates using unmanned aerial vehicle or satellite data linked to our mapping tool. We will use and refine TLS and develop a workflow so foresters and landowners can scan forest plots and create inventories of species, tree sizes, forest carbon and other parameters. Traditional forest inventories will allow us to conduct measurements across more acres and provide additional validation for TLS-based estimates at the start of the project but are projected to become less important after 5 years.

A map-based MMRV tool developed for NYS by SUNY ESF provides estimates of forest C stocks and C stock-change at high spatial (30m) and temporal resolution (annual), both

retrospectively (to 1990) and prospectively for monitoring purposes. The map outputs, when overlaid with tax parcel boundaries, provide the basis for parcel based MMRV of practice implementation, C removals/emissions, and land use conversions. Our geospatial MMRV platform aligns with COMET's Forest Entity-Based Carbon Estimation procedures in several keyways: 1) dependence on Forest Inventory Analysis (FIA) data and Component Ratio Method allometrics, 2) use of IPCC and FIA-compliant stock-change C accounting, 3) observation of forest harvesting and post-harvesting outcomes and 4) the ability to couple our models' and map outputs with empirical and simulation-derived projections of future C benefits under various scenarios. Our outputs are spatially explicit at the sub parcel scale, enabling us to screen and prioritize landowner participants in ways that maximize climate benefits.

Data will be collected during the implementation of CSAF practices from equipment operators including: 1) volume of forest materials processed into different climate smart products, 2) equipment make, model and age, and 3) diesel fuel, lubricants etc. use for each piece of equipment. This will be input data for integrated Lifecycle Assessment (LCA)/Techno-economic Analysis (TEA) of different practices. This type of analysis is called for in the National Academy of Sciences report[8] when implementing landowner incentive programs.

B. Approach to monitoring of practice implementation, including the anticipated number of farms and acres reached through project activities

We will implement a stratified sample of forest properties chosen for CSF practices in Regenerate NY (~1,000 acres) and the 480a programs (~1,000 acres) based on forest type, structure, and age using a combination of TLS and traditional forestry inventory. Sites will be inventoried prior to practice implementation, within 6 months of completion and 2-3 years later. This will allow for an assessment of changes in species, sizes, growth rates and overall stored forest carbon and provide verification and training data for the map based MMRV platform.

C. Approach to reporting and tracking of greenhouse gas benefits including the anticipated GHG benefits per farm, per project, per commodity produced, per dollar expended, and the anticipated longevity of GHG benefits

The integrated LCA/TEA will be used to assess and report the GHG benefits and economic impacts for the entire system from the forest stand through the production, supply chain and end of life of climate smart commodities. We will model multiple CSAF practices indifferent forest types and conditions, combine this with the MMRV mapping tool and link it to GHG benefits and costs for the production and use of different smart commodities. This will allow us to develop a user-friendly tool to estimate GHG benefits and costs per ton of CO2e that can be use

[8] National Academies of Sciences, Engineering, and Medicine 2019. Negative Emissions Technologies and Reliable Sequestration: A Research Agenda. Washington, DC: The National Academies Press. https://doi.org/10.17226/25259.

by foresters, landowners, extension agents and others to estimate the GHG benefits and cost per ton CO2e of different climate smart commodities.

The LCA will be performed as defined by the International Standardization Organization (ISO 14040 and ISO 14044). It will report the operational GHG emissions and embodied carbon for each individual site and scaled to the final commodities based on site productivity data. The TEA will estimate the minimum selling price of the feedstock that is necessary for the feedstock production operation to achieve a net present value of zero and will incorporate values for carbon from the marketplace or the social cost of carbon. The integrated analysis will calculate GHG stored per $ invested (Kg CO2/ $) and compare different combinations of practices and products to determine which are most carbon efficient. We will incorporate information on the implementation of practices with a spatial database linked with the MMRV mapping tool so landowners and program administrators can understand overall GHG benefits as well as costs and cost per ton CO2eq at the stand or parcel level. The MMRV mapping tools can then be integrated with the LCA/TEA to provide an assessment of the spatial GHG benefits and costs across the landscape.

D. Approach to verification of greenhouse gas benefits

The CSF practices require a forester to develop management and implementation plans and include regular site visits from NYS DEC foresters. As programs expand, the demand for site visits will grow so we will develop the MMRV mapping tool as the primary screening tool for properties where these practices are implemented and use it to focus visits to specific sites where the forest is not responding to the practices as expected. We will use established practices developed from extensive experience working with landowners and loggers to collect operational data. The long-term nature of forests means there is a limited time frame to collect data on changes in forest carbon following practices. To address this, we will use sites managed by team members (Cornell, DEC, SUNY ESF) where practices were implemented in the past and key stand data was collected. We will remeasure these sites using traditional forestry inventories and TLS to verify and refine forest growth models for these different practices.

E. Agreement to participate in the Partnerships Network

We will actively participate in the Partnerships Network and provide representatives from our team that are leading efforts in: 1) implementing CSAF practices with landowners, 2) MMRV, and 3) developing markets and tracking systems for climate smart commodities.

Part 4: A plan to develop and expand markets for climate-smart commodities generated as a result of project activities

As of 2021 over 1/5 of the world's largest companies have committed to Net-Zero Carbon targets.[13] Additionally, over 131 countries, 116 regions/states and 234 cities around the globe have made net-zero commitments as of April 2022.[14] NYS had a gross domestic product (GDP)

of over $1.9 trillion, ranking the state as the 10th largest economy in the world and contributing over 8% of the US GDP.[15] The *city* of New York, is the largest city in the country, with the nation's biggest consumer base and a gross metropolitan product (GMP) of $1.66 Trillion.[16] NYS is also home to the most corporate headquarters in the US and the epicenter for investment banks and shareholders driving ESG (Environmental and Social Governance) investing and climate governance. These factors create a unique opportunity to develop and verify CSAF practices that will provide climate smart commodities to rapidly emerging markets for climate commodities and provide a framework that can be applied nationally.

For climate smart commodities from agriculture and forestry, NYS not only has significant potential for supply, but growing demand. A recent analysis[17] for implementing NYS's Climate Act predicts 6-8 million new building shells will be needed to lower space heat demand with one million of these in new construction to reach 2050 net zero goals. The embodied carbon in building materials is of growing concern[18, 19, 20] driving the need for climate-smart commodities in our state. Bio-based materials that store carbon, increase sequestration, and are processed efficiently, could reduce net emissions by 100 million metric tons CO_2e (estimate considering use of bio-based insulation and timber products vs concrete and steel). In addition, low carbon fuels made from CSAF for building heat, hard to decarbonize industry and transportation need to be significantly scaled to supply hundreds of millions of gallons in the next decade. Standards for GHG accounting, benefits to disadvantaged communities, and environmental justice, all must be addressed and so by necessity NYS will be an early adopter in these areas. Our plan leverages the unique experiences of project team leadership in working with both the USDA [ORD + OCE on BioPreferred, 9003 Program and Bioindicators] and the world's largest corporations coupled with our expansive set of partners from industry, the financial sector, associations and state agencies. While the goal to achieve a net-zero economy through climate-smart commodities is gaining tremendous traction, there are several hurdles that must be overcome for this transition to achieve success.

To leverage these unique opportunities in New York State, the project team will focus its efforts in three distinct and inter-dependent thrusts.

1. The first thrust is to generate the awareness for both growers and consumers of the environmental, economic and American/Rural job benefits/opportunities of Climate SMART commodities ie. Market Awareness
2. The second will be to develop and implement strategic partnerships with various industrial sectors and institutional buyers ie. To Create Market Pull
3. The third thrust is critical. While we create market awareness and pull, the market will not engage unless they can be overcome existing barriers ie. purchasing policies, incentives, processing, logistics, exporting, finance and insurance ie. Market Systems

Market expansion and tracking efforts for CSAF products will be led by Syracuse University. As detailed below, our efforts include a special focus on supporting Climate Smart growers and businesses located in historically underserved communities in New York. Additionally, the tasks described below will also have a focus on the recruitment of university students to carry out many of the implementation tasks. This is not done for just cost efficiencies but more

importantly it provides development of a trained workforce that will aid in the long-term sustainability of Climate Smart commodities spanning from field to store. We will also target to recruit students who come from both historically underserved and rural-based agriculture communities.

A. Any partnerships designed to market resulting climate-smart commodities

Partnerships to "bring-to-market" and promote climate-smart commodities.

a. Market awareness partnerships. Our work will span individual consumers to corporate institutional buyers to regional government purchasing officers. We will develop "sector-specific" publications that provide detailed benefits of various existing and some emerging Climate Smart commodities. This will span Climate Smart commodity benefits for the consumer at the grocery store all the way to higher-value commodities used in the industrial sectors of construction, energy, fuels and Biobased products. Our reports and example marketing publications including social media will be based on the feedback obtained during interviews and our in-state and regional workshops with consumers and importantly institutional buyers so that they can effectively market Climate Smart commodities and products at point of sale both virtually and in-store.

We will leverage our existing network and partnerships to focus on 1). building construction materials from mass timber and other long-lived sustainably produced forest products 2). Low carbon fuels with a focus on sustainable aviation fuel (SAF)3). Packaging using cellulosic and, 4). Low carbon dairy products. Of great emphasis for the team will be to work with growers and producers in underserved communities in New York State to provide the market awareness and economic opportunities that better served communities realize. Years 1-5. Documenting benefits led Davis, Schneider and Luttrell of the Newhouse School and supported by students from Maxwell and Newhouse.

b. Market pull partnerships. Here we will work with multiple industry sectors in New York State such as retail grocery, architecture/engineering/construction, energy, chemicals and Biobased product companies. Based on our interviews and importantly our in-state and regional workshops, we will develop data-driven publications detailing the comparative environmental, economic and performance benefits of Climate Smart commodities vs. Traditional/legacy commodities. These publications will be "use-inspired" by which rather than have the team guess what the market needs, we will have the market tell us what they need to successfully generate market pull.

As an example, we will develop publications regarding the climate and additional sustainability benefits of Timber which, offers superior insulation, lower CO2 emissions and greater environmental sustainability when compared to other materials, such as steel which the United States is heavily dependent on foreign imports.

Not only will we create information publications, but we will host regional workshops with targeted industry professionals in the rapidly expanding commercial and industrial construction sectors and promote the benefits and highlight examples of early adopters such

as Walmart who is constructing its entire new corporate campus with Timber to meet its net-zero carbon goals.[9] Years 1-5: Data driven documentation and workshops by Dynamic Sustainability Lab led by Sr. Project Manager with students and publications by Newhouse School.

c. **Market systems partnerships.** While increased awareness and market pull of Climate Smart commodities occurs, there are a number of less known barriers that exist to both the near-term and longer-term sustainability of Climate Smart commodities. These issues happen both on farm/forest level as well as within industry and government. As an example, we will work to address and implement programs regarding insurance. Continuing with the Timber industry example, insurance costs are among the highest for the forestry sector and rates are also significantly higher for mass timber construction vs. Steel.[10] Similarly, for the insurance sector, the industry has not yet developed economical insurance products to guarantee and eliminate the risks to those individuals, corporations and financial institutions eager to purchase on-farm voluntary carbon credits and/or guarantee Climate Smart products throughout the value chain. This also includes issues with carbon negative fuels and chemicals where climate smart feedstocks are coupled with carbon capture and sequestration (CCS) technologies. The management and reduction of these risks are imperative in order for institutional buyers ie. Retail stores, manufacturers etc to purchase climate smart commodities and products. This is just one example, but insurance plays a critical part of system and relates closely with MMRV. Additional barriers to adoption and growth of climate smart commodities that require market system partnerships will be identified and prioritized by industry through our interviews and workshops. Other known barriers which have been identified by our current work are listed below and addressed ie. Tracking, connecting, labeling etc.

We will accomplish the desired outcomes of the three listed tasks above by hosting quarterly workshops in the State of New York in years 1-5, primarily in underserved communities. We will also host up to 2 out-of-state workshops in years 1-5 to attract the active participation of national organizations and partners. Additionally, we will work with our network in Canada as well with the European Union and their U.S. representatives / offices to develop pathways for exportation of New York Smart Commodities and products. Data and workshops will be led by Dr. Golden and the Project Coordinator of Dynamic Sustainability Lab with support of students as well as contracted work from Innsure (years 1-3) and SCRE (years 1-3).

- **Connecting Partners.** Essential to growing and sustaining Climate Smart commodities is to successfully connect those who seek to acquire Climate Smart commodities with those who produce them-with a ***focus on promoting growers and producers/manufacturers in underserved communities***. Our team will work with NYSERDA to develop a user-friendly and interactive database on the web that accomplishes this need. We will structure the site so that:

[9] Walmart's New Home Office

[10] Insurance Pricing for Mass Timber Buildings | SCMA (scmaonline.org)

- Buyers/distributors from various industrial sectors and governmental agencies can locate manufacturing producers of finalized products by sector.
- Manufacturers and processors can locate growers of Climate Smart forestry and farm commodities
- Growers can locate potential customers ie. Processors, manufacturers and other buyers
- All parts of the value chain can locate service providers to address possible barriers such as insurance, finance, etc.
- We will highlight and prominently promote those organizations/growers in underserved communities.

This will be done in years 1-5 led by the Dynamic Sustainability Lab led by the Sr. Project Manager, students and partner NYSERDA.

A. Plan to track climate-smart commodities through the supply chain

The lack of North American Industry Classification System codes that capture biobased /sustainable sectors of the economy is a barrier to robust climate-smart commodities marketplaces.[21] This cannot be remedied in the near-term so we will leverage Blockchain Technologies to overcome this impediment. Blockchain is now utilized in food, ESG, energy, carbon accounting and other sustainable supply chain market projects.[22, 23] We anticipate Blockchain Technologies will be part of more secure and transparent mechanisms to track carbon through supply chain ecosystems.[24, 25] When well designed and carefully implemented, Blockchain platforms and smart contracts can aid in tracking and allocating GHG benefit ownership throughout the value chain.

We will develop a pilot project for NY's building sector which faces new regulations to transition to low carbon construction, leveraging Syracuse University's School of Information Studies research on blockchaining building Digital Twins and SUNY ESF's Sustainable Construction and mass timber expertise. This will be a catalyst for using CSAF commodities in blockchain ecosystems beyond IBM's Food Trust and can contribute to creating a scalable trust architecture for the broader economy in NYS and across the country (Years 1-5 led by McKnight with student support)

Additionally, using Blockchain smart contracts coupled with our expertise with NYS Grown & Certified Program, the USDA BioPreferred Label, and partnerships with industry stakeholders, we will create a NY State Climate-Smart Commodities Label ecosystem. NYS Climate-Smart label would promote as well as track climate-smart commodities through the value chain by commodity type and could be used by intermediates as well as final products spanning groceries, apparel, fuels, furniture and/or materials for mass timber. Working with stakeholders spanning growers, standards organizations and retailers via workshops and a technical committee, we will pursue the development of a label e designed for multi-chain and multi-cloud interoperability and market accessibility, which will accelerate adoption and use. We will seek to coordinate efforts with other state/federal initiatives as they emerge. Years 1-5led by Dynamic Sustainability Lab with NYSERDA.

B. Estimated economic benefits for participating producers including market returns.

NYS Biobased Products Industry already has a strong base as noted above and is poised for rapid growth with the implementation of the Climate Act. For example, chemical manufacturing is the largest manufacturing industry in the state and top 10 in the nation[26] at $27.8 B[27] and legacy infrastructure is critical to pivot to climate-smart chemicals and fuels driven by net-zero carbon commitments from both chemical manufacturers and their end users. Additionally, the New York Renewable Fuels Road map projects 7,780 to 14,019 jobs and gross domestic product up to $1.79B from using sustainably produced biomass to produce renewable fuels. Importantly, this estimate was completed before both the drive to net-zero carbon and January 2022 commitments by the global aviation sector to transition to sustainable aviation fuels[28]. We will leverage our expertise in supporting USDA with economic impact analyses for Biobased Products[11] we will use Implan modeling to quantify the direct, indirect and induced economic and job benefits for producers in New York State. Years 1-5 via contractor J. Daystar (Triangle LCA).

C. Post-project potential, anticipated scale long-term viability beyond project period.

An important way to scale and provide long-term viability is to develop a well-connected pipeline of producers and end-users. The interactive website and database jointly developed between NYSERDA and Syracuse University will serve to facilitate continued scaling. In addition:

a. NY Climate-Smart Marketing Campaign. Led by the Newhouse School of Communications in partnership with AGM, DEC and NYSERDA we will develop a NYS climate smart commodities marketing campaign with targeted approaches to grow the near-term and long-term consumption of climate smart commodities and products. This will build on programs like Taste NY and NYS Grown & Certified and span point-of-purchase marketing to multi-demographic social media campaigns. This will include our workshops, publications, a website, social media, podcasts as well as talks at industry conferences and meetings. We will also work to link New York climate smart commodities and products to government preferred purchasing programs at the local, state, national and international level. Finally, we will seek to have our publications and findings as well as short stories published in trade and general interest publications.

b. Pipeline of Innovators and Climate-Smart Commodity Businesses. To achieve long-term viability, we must create a new generation of innovators and businesses focused on climate-smart commodities. We will leverage the expertise of the existing state-sponsored NY Green Bank, the largest green bank in the nation, and leverage the existing Blackstone Launch Pad located at Syracuse University, which will partner with the largest comprehensive system of universities, college and community colleges in the country

[11] https://www.usda.gov/media/press-releases/2021/07/29/usda-releases-economic-impact-analysis-us-biobased-products#:~:text=According%20to%20the%20report%2C%20in,economy%20for%20every%20biobased%20job.

(SUNY) as well as the other private institutions to cultivate and mentor innovators-with a special focus on underserved communities. Again, one of our focus areas will to be engaging a pipeline of innovators and business entrepreneurs located in underserved communities and to assist in locating pre-seed and seed funding for their climate smart ventures.

ADS	Anaerobic Digester Systems
AEM	Agricultural Environmental Management
AGM	New York State Department of Agriculture and Markets
BIPOC	Black, Indigenous and People of Color
BMP	Best Management Practices
C2V	Carbon to Value
CAFRI	Climate and Applied Forest Research Institute
CALS	Cornell Collage of Agriculture and Life Sciences
CCE	Cornell Cooperative Extension
Climate Act	New York State's Climate Leadership and Community Protection Act
CNCPS	Cornell Net Carbohydrate and Protein System
CRF	Climate Resilient Farming
CSA	Climate Smart Agriculture
CSAF	Climate Smart Agriculture and Forestry
CSA	Climate Smart Agriculture
DEC	New York State Department of Environmental Conservation
DEC DLF	NYS DEC Division of Land and Forests
DEI	Diversity, Equity, Inclusion
ESG	Environmental and Social, Governance
FCVP	Forest + Climate Visualization Partnership
FIA	Forest Inventory Analysis
GDP	Gross Domestic Product
GMP	Gross Metropolitan Product
GHG	Greenhouse Gas
ISO	International Standardization Organization
IPCC	Intergovernmental Panel on Climate Change
LCA	Lifecycle Assessment
MMRV	Measurement/quantification, reporting, and verification

MSU	Michigan State University
NGO	Non-Governmental Organization
NMSP	Nutrient Management Spear Program
NYC	New York City
NYFOA	New York Forest Owners Association
NYS	New York State
NYSERDA	New York State Energy Research and Development Authority
SWCC	New York State Soil and Water Conservation Committee
SWCD	Soil and Water Conservation District
SUNY ESF	State University of New York, College of Environmental Science and Forestry
TEA	Techno-economic analysis
TLS	Terrestrial Laser Systems

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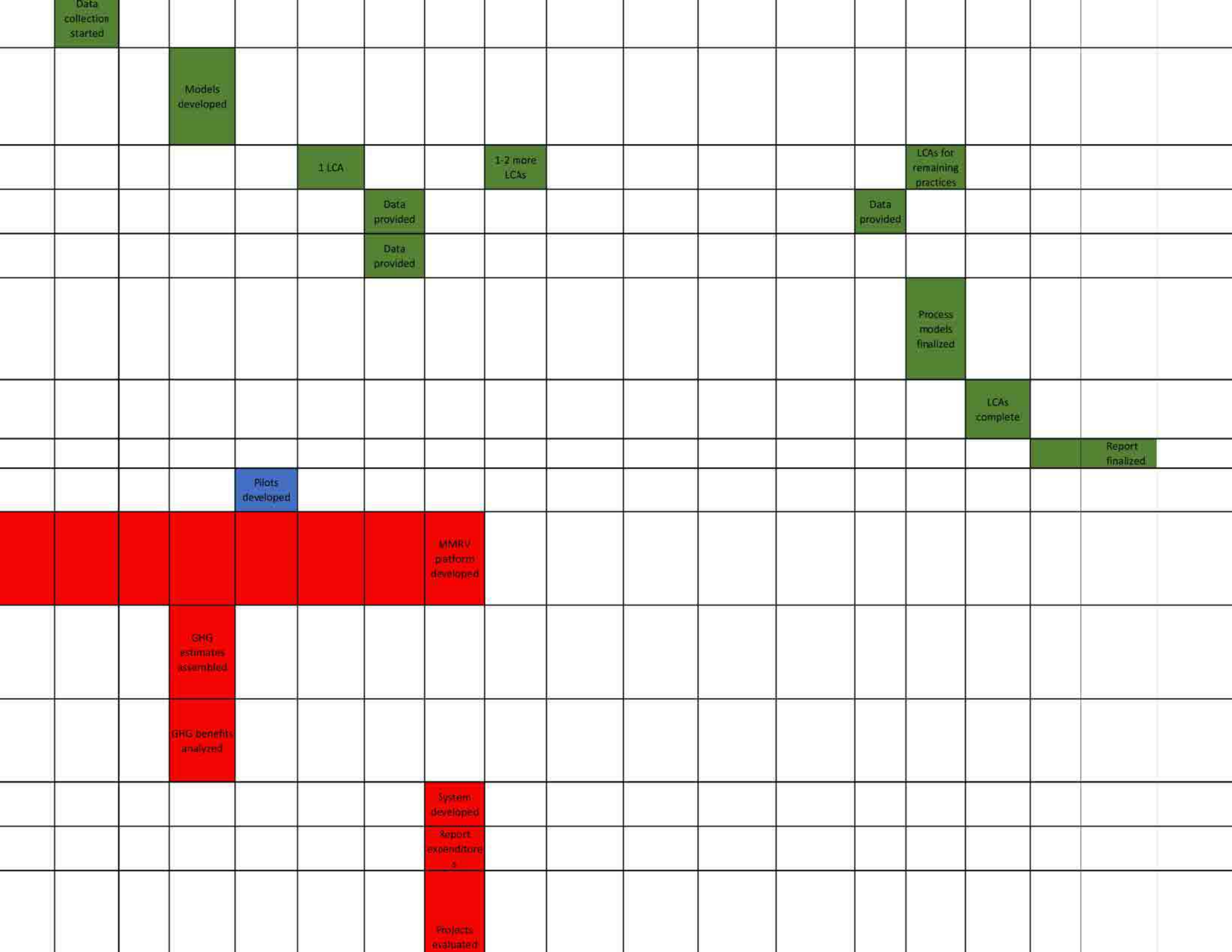
			10				25				45				65				
							20,000				20,000				20,000				
			10	5	5	5	10	10	10	10	15	50	40	40	50	70	50	50	
				2,000 acres funded				4,000 acres funded				6,500 acres funded 1,500 acres done				10,000 acres funded 5,000 acres done			
								18,000 acres cover crops funded 29 acres buffers funded								10,000 acres started 5,000 acres done			
				12 funded				25 funded				40 funded 10 done				60 funded 30 done			
												30 funded 20 Incentives for data collection				30 funded 20 Incentives for data collection			
												68,584 MTCO2 eq/yr emission reduction							
			3																
							5				5								
															10				
200-300 acres 2023				300-400 acres 2024				350-450 acres 2025				500-600 acres 2026							
	1,500 acres			Up to 2,000 acres				Up to 4,000 acres				Up to 6,500 acres				Up to 10,000 acres			
Scenarios defined																			
Wood-based commoditi es																			


Data collection started
Models developed
1 LCA
1-2 more LCAs
LCAs for remaining practices
Data provided
Data provided
Data provided
Process models finalized
LCAs complete
Report finalized
Pilots developed
MMRV platform developed
GHG estimates assembled
GHG benefits analyzed
System developed
Report expenditures
Projects evaluated

											GHG mitigation estimated				mitigation estimated			
											Cost per CO2e estimated				Cost per CO2e estimated			
											Recommendati ons developed				Recommend ations developed			
											Results reported							Results reported
																		MMRV platform and quantification improved
																		Practice GHG mitigation costs improved
																		Recommentatio ns improved
																		MMRV & GHG quantification improved
																		Cost/MT on farm compared with literature
																		Final recommendatio ns summarised
			4			6					10				20			
			2			5					12				20			
								Database developed										
									Website maintained	Website maintained	Website maintained	Website maintained	Website maintaine d	Website maintained	Website maintained	Website maintaine d	Website maintained	Website maintained
					Grower interviews complete													
									Producer & manufacturer interviews complete									
														Retailer interviews complete				
				Published		Published		Published		Published		Published		Published		Published		Published
									Outreach efforts to	Outreach efforts to	Outreach efforts to	Outreach efforts to						

							Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed
					Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed	Outreach developed
					Council formed														
							Working groups formed												
								Updates complete	Updates complete	Updates complete	Updates complete	Updates complete	Updates complete	Updates complete	Updates complete	Updates complete	Updates complete	Updates complete	Updates complete
						Report complete				Report complete				Report complete					Report complete
			1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete	1 Workshop complete
				1 Workshop complete				1 Workshop complete				1 Workshop complete						1 Workshop complete	
						1 Workshop complete				1 Workshop complete				1 Workshop complete					1 Workshop complete
		Models for 2-3 practices					Models for 2-3 practices						Model remaining practices						
	Outreach networks identified																		
			5 interns				5 interns				5 interns			5 interns					
					Barriers identified														
									Behavioral strategies implemented										
												Framework created							
															Insights				

															Visualization s finalized			

Regenerate NY forestry practices:

nds $1,000,000, At least 12 projects total funded, Projects in progress on at least 2,000 acres

nds $1,000,000, At least 25 projects total funded, Projects in progress on at least 4,000 acres

east 40 projects tctal funded, Projects in progress on at least 6,500 acres, At least 10 projects complete, Practices implemented on at least 1,500 acres

ast 60 projects to:al funded, Projects in progress on at least 10,000 acres, At least 30 projects complete, Practices implemented on at least 5,000 acres

nds $5,000,000 , At least 60 projects complete, Practices implemented on at least 10,000 acres

Agriculture & Markets practice implimentation

nent of pilot projects for methane monitoring and adaptive management, Development of CRF Round 8 with integrated for acceleration of practices for manure management and soil health including agroforestry.

d CRF Round 8 prcjects. Key metrics will be similar to or exceed Round 6 which included an estimated: 18,000 acres of ,584 MTCO2 eq/yr emissions reductions proposed, Open solicitations for pilot projects to incentivize digital technology use and data monitoring and collection.

ct at least 30 projects for cost-share assistance for landowners under CRF Round 8. Develop CRF Round 9 to continue t 20 landowners incentivized for methane reduction data collection and/or adaptive management digital technology usage.

ward CRF Round 9 projects. Projects in progress on at least 10,000 acres. At least 30 projects in progress. Practices ast 20 landowners incentivized for methane reduction data collection and/cr adaptive management digital technology usage.

ast 30 projects complete. At least 30 projects in progress. Practices implemented on at least 10,000 acres. At least 20 rs incentivized for methane reduction data collection and/or digital technology usages.

Climate-Smart Practices and Limitations

Climate-Smart practices under this grant shall be limited to the following practices:

NRCS Practice Code (if applicable)	Practice Name
311	Alley Cropping
314	Brush Management
315	Herbaceous Weed Control
317	Composting Facility
327	Conservation Cover
328	Conservation Crop Rotation
329	Residue and Tillage Management, No till
330	Contour Farming
331	Contour Orchard and Other Perennial Crops
332	Contour Buffer Strips
340	Cover Crop
342	Critical Area Planting
345	Residue and Tillage Management, Reduced till
367	Roof & Covers
313	Waste Storage Facility
371	Air Filtration and Scrubbing
378	Pond
381	Silvopasture
382	Fence
384	Woody Residue Treatment
386	Field Border
390	Riparian Herbaceous Cover
391	Riparian Forest Buffer
393	Filter Strip
412	Grassed Waterway
472	Access Control
484	Mulching
490	Tree/Shrub Site Preparation
512	Pasture and Hay Planting
528	Prescribed Grazing
533	Pumping Plant
578	Stream Crossing
585	Stripcropping
592	Feed Management
612	Tree/Shrub Establishment
601	Vegetative Barriers
603	Herbaceous Wind Barrier
612	Tree/Shrub Establishment
629	Waste Treatment
632	Waste Separation Facility

634	Waste Transfer
645	Upland Wildlife Habitat Management
660	Tree/Shrub Pruning
666	Forest Stand Improvement
808	Soil Carbon Amendment

All practices applied under this grant will follow NRCS practice standards unless noted below:

Practice Name	**Alternative Practice Standards**
None	

Partnerships for Climate-Smart Commodities Data Dictionary for Recipients

February 2023

Version 1.0

USDA Partnerships for Climate-Smart Commodities Data Dictionary for Recipients
February 2023

Table of Contents

Overview of Reporting Requirements

Grant recipients are required to submit reports to document their performance under the *Partnerships for Climate-Smart Commodity* funding opportunity. These submissions will be required to use the Microsoft Excel workbook templates provided by USDA. The workbooks contain a series of worksheets that collect data in a standardized format to ensure data quality and allow for aggregation and summary of this information. The entire workbook must be submitted quarterly, with updates to all applicable worksheets. This guide is divided into three sections. The *Overview of Reporting Requirements* section summarizes the layout of the reporting workbook and presents the data elements included in each worksheet. It also describes additional documents that must be submitted to supplement the performance reports. The *Data Definitions* section provides descriptions and allowable response options for each data element. The guide also indicates whether each data element is required, applicable at times, or optional; as well as how frequently each data element must be updated. Finally, the *Appendices* contain practice and commodity lists that will be used for these reports. Reporting is necessary for USDA oversight of this effort. The data elements required for inclusion in the quarterly performance reports allow USDA to conduct selected audits to review whether producers are receiving federal funds from multiple sources for the same purpose; to determine whether GHG benefits from implementation of climate-smart agriculture and forestry (CSAF) practices are being estimated accurately; and for other purposes deemed appropriate by USDA.

The reporting worksheets collect information at four levels: project, partner, producer, and field. Descriptions of each level:

> **Project level**: Information about activities and impacts at a whole project/aggregate level (i.e., reflecting all activities under the grant agreement). Some project-level reporting is further subdivided by commodity type or a combination of commodity and CSAF practice(s) (commodity x practice).
> **Partner level:** Information about activities related to a single organization (recipient, subrecipient, contractor, or other partner) within a project.
> **Producer level**: Information about individual producers who have one or more farms enrolled in a project.
> **Field level**: Information about individual fields enrolled in a project.

Certain data elements are required to be reported for each producer and field enrolled in a project. In order to minimize the burden associated with data collection and to enable USDA to match data to existing records, these producer- and field-specific records must use the producer's established FSA Farm, Tract and Field IDs, and report the State and County associated with the Farm ID. Associated data entered in conjunction with these data elements, such as Producer Name, must match the data contained in the customer's Business Partner record, and the Farm Operating Plan in Business File for that Farm ID. Disclosure of this information is protected under Section 1619 of the Food, Conservation, and Energy Act of 2008 (PL 110- 246), 7 U.S.C. 8791. Additionally, Departmental Regulation 4370-001 provides USDA's policies for collecting demographic data, including race, ethnicity and gender. Providing demographic information is voluntary and at the discretion of the customer. Demographic information is used by USDA for statistical purposes only and will not be used to determine an applicant's eligibility for programs or services for which they apply.

Note: For purposes of this guide, "farm" refers to the operation from which climate-smart commodities are produced and may represent farms, ranches, forests or other operations. Similarly, "field" refers to the individual land units at which climate-smart practices are being implemented to produce climate-smart commodities and may represent lots, farmsteads or other units, depending on the type of operation and commodity. The use of "Farm", "Tract" and "Field" align with the FSA definitions; for example, "A field is a part of a farm that is separated from the balance of the farm by a permanent boundary, such as; fences, permanent waterways, woodlands, croplines in cases where farming practices make it probable that this cropline is not subject to change, and other similar features."

USDA Partnerships for Climate-Smart Commodities Data Dictionary for Recipients
February 2023

The following tables list the data elements included in each reporting worksheet, along with a brief description of each item.

Project Summary

These data will be collected about each project. Cumulative results are reported each quarter. Report last quarter's entry if there has been no change in this quarter.

Table 1. Project Summary elements

Data element name	Description	Frequency
Commodity type	Type of commodity(ies) incentivized by the project	Quarterly
Commodity sales	Indicates sales of the commodity(ies) related to the project occurred this quarter	Quarterly
Farms enrolled	Indicates enrollment activities occurred this quarter	Quarterly
GHG calculation methods	Methods used to calculate greenhouse gas (GHG) benefits	Quarterly
GHG cumulative calculation	Method used to calculate cumulative GHG benefits	Quarterly
Cumulative GHG benefits	Whole project estimate of total GHG (CO2e) emission reductions	Quarterly
Cumulative carbon stock	Whole project estimate of total carbon sequestration	Quarterly
Cumulative CO2 benefit	Whole project estimate of total CO2 emission reductions	Quarterly
Cumulative CH4 benefit	Whole project estimate of total CH4 emission reductions	Quarterly
Cumulative N2O benefit	Whole project estimate of total N2O emission reductions	Quarterly
Offsets produced	Amount of carbon offsets produced by project	Quarterly
Offsets sale	Name of marketplace where carbon offsets were sold	Quarterly
Offsets price	Price of carbon in offset sales	Quarterly
Insets produced	Amount of carbon insets produced by project	Quarterly
Cost of on-farm TA	Cost of on-farm technical assistance (TA) provided to producers	Quarterly
MMRV cost	Cost of measurement, monitoring, reporting, and verification (MMRV) activities	Quarterly
GHG monitoring method	Methods used by project to monitor GHG benefits (up to 5)	Quarterly
GHG reporting method	Methods used by project to report on GHG benefits (up to 5)	Quarterly
GHG verification method	Methods used to verify GHG benefits (up to 5)	Quarterly

Partner Activities

These data will be collected at the project level. Each row in this worksheet will represent one organization involved in the project, including the recipient and all contributing partners. A partner is any organization that is receiving project funds or providing matching contributions (funds or in-kind contributions) to the project. While the recipient must complete one row for their own organization, not all data elements apply to the recipient. These exceptions are noted in the detailed descriptions of the specific elements in the *Data Definitions* section of this guide. Data are reported cumulatively each quarter. Report last quarter's entry if there has been no change in this quarter.

Table 2. Partner Activities elements

Data element name	Description	Frequency
Partner ID	Unique ID for each partner	One-time
Partner name	Name of partner organization	One-time
Partner type	Type of organization	One-time
Partner POC	Partner point of contact name	As applicable
Partner POC email	Partner point of contact email	As applicable
Partnership start date	Start of partnership on project	One-time
Partnership end date	End of partnership on project	As applicable
New partnership	Indicator for partner organizations that have no prior work with the recipient	As applicable
Partner total requested	Total amount requested to date by partner from recipient	Quarterly
Total match contribution	Total amount of match contribution by partner to date	Quarterly
Total match incentives	Total amount of match contribution by partner for incentives	Quarterly
Match type	Top 3 types of match contribution by partner, other than incentives	Quarterly
Match amount	Value of match contributions by type	Quarterly
Training provided	Top 3 types of training provided to the partner through project	Quarterly
Activity by partner	Top 3 types of activities provided by this partner to producers or other partners	Quarterly
Activity cost	Approximate cost per activity type provided by partner to producers or other partners	Quarterly
Products supplied	Names of products supplied to producers as part of project activities or incentives	Quarterly
Product source	Supplier or source of products supplied to producers as part of project activities or incentives	Quarterly

Marketing Activities

These data will be collected at the project level. Each row in this worksheet will correspond to one commodity for which the project enrolls fields and one marketing channel used to sell that commodity by the project or producers enrolled in the project. Data are reported for the current quarter and are not cumulative. If no sales of the commodity were reported during a quarter, do not complete this worksheet for that quarter.

Table 3. Marketing Activities elements

Data element name	Description	Frequency
Commodity type	Type of commodity incentivized by the project	Quarterly
Marketing channel type	Type of marketing channels used	Quarterly
Number of buyers	Number of buyers per marketing channel	Quarterly
Names of buyers	Names of buyers in the marketing channel	Quarterly
Marketing channel geography	Geography of marketing channel	Quarterly
Value sold	Value of commodity sold by marketing channel	Quarterly
Volume sold	Volume of commodity sold by marketing channel	Quarterly
Price premium	Price premium of commodity by marketing channel	Quarterly
Price premium to producer	Percent of price premium that goes to the producer	Quarterly
Product differentiation method	Top 3 types of product differentiation methods used	Quarterly
Marketing method	Top 3 types of marketing methods used	Quarterly
Marketing channel identification method	Top 3 ways marketing channel was identified	Quarterly
Traceability method	Top 3 types of supply chain traceability methods used	Quarterly

Producer Enrollment

These data will be collected at the producer level about each farm enrolled in the project. In this worksheet, each row will correspond to one farm that has at least one field enrolled in the project. Data are reported when a producer first enrolls one or more fields in the project. If a producer is enrolled in the project for multiple years, review the farm characteristics each time a new contract is signed and provide any necessary updates. The quarterly submission should contain information about each farm initially enrolled in the project during that quarter and for updates to farms that have re-enrolled during that quarter, as applicable. If no farms are enrolled during that quarter, do not complete this worksheet for that quarter.

Table 4. Producer Enrollment elements

Data element name	Description	Frequency
Farm ID	Unique Farm ID assigned by FSA	
State or territory	State name (must match FSA farm enrollment data)	
County of residence	County name (must match FSA farm enrollment data)	
Producer data change	Indicator that producer data was updated at re-enrollment	As applicable
Producer start date	Contract start date	Enrollment
Producer name	Name of primary operator	Enrollment
Underserved status	Indicator the primary operator is considered underserved and/or a small producer	Enrollment
Total area	Total area of enrolled operation	Annual
Total crop area	Total crop area in enrolled operation enrolled	Annual
Total livestock area	Total livestock confinement, pasture and rangeland in enrolled operation	Annual
Total forest area	Total forest area in enrolled operation	Annual
Livestock type	Top 3 types of livestock on enrolled operation	Annual
Livestock head	Total livestock currently managed (by type)	Annual
Organic farm	Indicator that part of the farm is certified or transitioning organic	Annual
Organic fields	Indicator that any of the enrolled fields are certified or transitioning organic	Annual
Producer motivation	Motivation for participation	Annual
Producer outreach	Top 3 types of outreach provided to producer	Annual
CSAF experience	Indicator of prior implementation of CSAF practices at this farm	Annual
CSAF federal funds	Indicator of prior receipt of federal funds for CSAF practices	Annual
CSAF state or local funds	Indicator of prior receipt of state funds for CSAF practices	Annual
CSAF nonprofit funds	Indicator of prior receipt of nonprofit funds for CSAF practices	Annual
CSAF market incentives	Indicator of prior receipt of market incentives for CSAF practices	Annual

Field Enrollment

These data will be collected about each field enrolled in the project. In this worksheet, each row corresponds to one field x commodity combination enrolled in the project. Generally, data are reported once for each field, at its initial enrollment. The quarterly submission should contain information about each field initially enrolled in the project during that quarter. If no fields are enrolled during that quarter, do not complete this worksheet for that quarter. If a field is enrolled for multiple years, any relevant changes, such as a new ID number or changes to the commodity or practice combinations should be entered in this worksheet during the quarter it is re-enrolled, or as applicable.

Table 5. Field Enrollment elements

Data element name	Description
Farm ID	Unique Farm ID assigned by FSA
Tract ID	Unique Tract ID assigned by FSA
Field ID	Unique Field ID assigned by FSA
State or territory of field	State name
Physical County of field	Physical county name must match FSA farm records
Prior Field ID	Previous Field ID when reconstitution of farm results in new Field IDs
Field data change	Indicator that field data has changed from initial enrollment
Contract start date	Start date of contract
Total field area	Size of enrolled field
Commodity category	Category of commodity(ies) produced
Commodity type	Type of commodity(ies) produced
Baseline yield	Average yield of commodity in 3 years prior to enrollment
Baseline yield location	Location for which baseline yield is provided
Field land use	Most common land use in field in past 3 years
Field irrigated	Most common irrigation type in field in past 3 years
Field tillage	Most common tillage in field in past 3 years
Practice past extent - farm	Extent of operation that implemented this practice prior to project enrollment
Field any CSAF practice	Indicator for prior CSAF practices in this field in past 3 years
Practice past use - this field	Indicator of prior use of this practice in this field in the past 3 years
Practice type	CSAF practice(s) that will be implemented in enrolled field (up to 7)
Practice standard	Organization that developed CSAF practice standard implemented in field
Planned practice implementation year	Year that practice is planned to be implemented
Practice extent	Area or number of animals for which practice is implemented
Follow-on questions	Follow-on questions by practice type (see Table 11)

Farm Summary

These data will be collected about each farm enrolled in the project. In this worksheet, each row will correspond to one farm that has at least one field enrolled in the project. The quarterly submission should contain updates to any data elements that have changed for each farm enrolled in the project during that quarter. If there are no changes from the previous quarter, do not complete this worksheet for that quarter. Data are not cumulative.

Table 6. Farm Summary elements

Data element name	Description	Frequency
Farm ID	Unique Farm ID assigned by FSA	
State or territory	State name	
County of residence	County name	
Producer TA received	Type of technical assistance provided to producer	Quarterly
Producer incentive amount	Total financial incentive provided to the producer	Quarterly
Incentive reason	Top 4 reason(s) for financial incentives provided to producer	Quarterly
Incentive structure	Top 4 units on which financial incentives are structured	Quarterly
Incentive type	Top 4 type(s) of financial incentives provided to producer	Quarterly
Payment on enrollment	Extent of payment provided to producer upon enrollment	Quarterly
Payment on implementation	Extent of payment provided to producer upon implementation of CSAF practices	Quarterly
Payment on harvest	Extent of payment provided to producer upon harvest or slaughter	Quarterly
Payment on MMRV	Extent of payment provided to producer upon reporting or verification	Quarterly
Payment on sale	Extent of payment provided to producer upon sale of commodity	Quarterly

Field Summary

These data will be collected about each field enrolled in the project for a commodity x practice(s) combination. In this worksheet, each row will correspond to one field x commodity x practice(s) combination enrolled in the project. Data for each field will be reported quarterly and are not cumulative. Report data for any elements that have an update in that quarter. Greenhouse gas benefit estimates must be entered upon practice completion or annually, as appropriate. If there are no changes from the previous quarter, do not complete this worksheet for that quarter. This worksheet includes a section to report the "official" estimate of GHG benefits – amounts of greenhouse gas emissions reduced and carbon sequestered – for the field. These quantities refer to the estimates that are used to calculate the project's aggregate impact (reported in Table 1). Tables 8 and 9 are used to report alternate estimates of the field-level GHG benefits when additional methods are used to model (Table 8) or measure (Table 9) these impacts. Any field that can use COMET-Planner must submit those results, either as the official or alternate model.

Table 7. Field Summary elements

Data element name	Description	Frequency
Farm ID	Unique Farm ID assigned by FSA	
Tract ID	Unique Tract ID assigned by FSA	
Field ID	Unique Field ID assigned by FSA	
State or territory of field	State name	
County of field	County name	
Commodity type	Type of commodity produced from field	Quarterly
Practice type	Type of practice(s) incentivized in field (up to seven)	Quarterly
Date practice complete	Date that practice implementation is certified complete	Quarterly
Contract end date	End date of contract	Quarterly
MMRV assistance provided	Indicator that MMRV assistance is provided to field	Quarterly
Marketing assistance provided	Indicator that marketing assistance provided for commodity from field	Quarterly
Incentive per acre or head	Indicator that a per acre/head incentives is provided for the CSAF practice(s) on this field	Quarterly
Field commodity value	Value of commodity produced from field	Quarterly
Field commodity volume	Volume of commodity produced from field	Quarterly
Cost of implementation	Total cost of practice implementation in field	Quarterly
Cost coverage	Percent of total cost of implementation of practice covered by project incentives	Quarterly
Field GHG monitoring	Methods used to monitor GHG benefits in field (up to 3)	Quarterly
Field GHG reporting	Methods used to report on GHG benefits for field (up to 3)	Quarterly
Field GHG verification	Methods used to verify GHG benefits for field (up to 3)	Quarterly
Field GHG calculations	Methods used to calculate GHG benefits for field	Quarterly
Field official GHG calculation	Method used to calculate official GHG benefits for field	Quarterly
Field official GHG ER	Official estimate of total GHG emission reductions for field	Quarterly
Field official carbon stock	Official estimate of total carbon sequestration for field	Quarterly
Field official CO2 ER	Official estimate of total CO2 emission reductions for field	Quarterly
Field official CH4 ER	Official estimate of total CH4 emission reductions for field	Quarterly
Field official N2O ER	Official estimate of total N2O emission reductions for field	Quarterly
Field offsets produced	Amount of carbon offsets produced in field	Quarterly
Field insets produced	Amount of carbon insets produced in field	Quarterly
Other field measurements	Indicator that field data was collected for reasons other than GHG benefit estimation	Quarterly

GHG Benefits - Alternate Modeled

If greenhouse gas benefits are modeled for the same field using multiple methods, the results for the alternate models are reported in this worksheet. The "alternate" models refer to those model results that were not used in the calculation of the project's aggregate impact (as reported in Table 1). Any field that can use COMET-Planner must submit those results, either as the official or alternate model. These data will be collected about the modeled GHG benefits for each field x commodity x practice(s) combination. In this worksheet, each row will correspond to one field enrolled in the project. Data are not cumulative. Each quarterly submission should include information for all fields that have new modeled data. Greenhouse gas benefit estimates must be entered upon practice completion or annually, as appropriate.

Table 8. GHG Benefits – Alternate Modeled elements

Data element name	Description	Frequency
Farm ID	Unique Farm ID assigned by FSA	
Tract ID	Unique Tract ID assigned by FSA	
Field ID	Unique Field ID assigned by FSA	
State or territory of field	State name	
County of field	County name	
Commodity type	Type of commodity(ies) produced from the field (up to 6)	Annual
Practice type	Type of practice(s) incentivized in field (up to 7)	Annual
GHG model	Model used to calculate GHG benefits	Annual
Model start date	Start date of model run	Annual
Model end date	End date of model run	Annual
Total GHG benefits estimated	Estimate of total GHG benefits for field	Annual
Total carbon stock estimated	Estimate of total change in carbon stock for field	Annual
Total CO2 estimated	Estimate of total CO2 emission reductions for field	Annual
Total CH4 estimated	Estimate of total CH4 emission reductions for field	Annual
Total N2O estimated	Estimate of total N2O emission reductions for field	Annual

GHG Benefits - Measured

Projects must report the results of any carbon stock or greenhouse gas emission measurements in this worksheet. These data will be collected at the field level. Each row will represent a separate measurement method used to calculate GHG benefits for a given field. Data are reported once per year of measurement and are not cumulative. Each quarterly submission should include information for any field for which there are new soil samples or new calculations of annual GHG benefits based on actual measurements.

Table 9. GHG Benefits - Measured data elements

Data element name	Description	Frequency
Farm ID	Unique Farm ID assigned by FSA	
Tract ID	Unique Tract ID assigned by FSA	
Field ID	Unique Field ID assigned by FSA	
State	State name	
County	County name	
GHG measurement method	Method of measurement	Annual
Lab name	Entity that conducted analysis	Annual
Measurement start date	Start date of measurements	Annual
Measurement end date	End date of measurements	Annual
Total CO2 reduction calculated	Calculation of total CO2 reduction	Annual
Total carbon stock change calculated	Calculation of change in carbon stock	Annual
Total CH4 reduction calculated	Calculation of total CH4 reduction	Annual
Total N2O reduction calculated	Calculation of total N2O reduction	Annual
Soil sample result	Numeric result from soil sample	Annual
Measurement type	Type of analysis conducted	Annual

Additional Environmental Benefits

Projects that track additional environmental benefits (e.g., water quality improvements) from enrolled fields report results in this worksheet. These data will be collected about each field. Each row in this worksheet will correspond to an enrolled field. Data are not cumulative. Estimates of environmental benefits must be entered upon practice completion or annually, as appropriate.

Table 10. Additional Environmental Benefits elements

Data element name	Description	Frequency
Farm ID	Unique Farm ID assigned by FSA	
Tract ID	Unique Tract ID assigned by FSA	
Field ID	Unique Field ID assigned by FSA	
State	State name	
County	County name	
Environmental benefits	Indicator that project tracks other environmental benefits	Annual
Reduction in nitrogen loss	Indicator that project tracks reductions in nitrogen loss	Annual
Amount	Amount	Annual
Purpose	Purpose of tracking those co-benefits	Annual
Reduction in phosphorus loss	Indicator that project tracks reductions in phosphorus loss	Annual
Amount	Amount	Annual
Purpose	Purpose of tracking those co-benefits	Annual
Other water quality	Indicator that project tracks other water quality improvements	Annual
Type	Type of water quality metric being tracked	Annual
Amount	Amount	Annual
Purpose	Purpose of tracking those co-benefits	Annual
Water quantity	Indicator that project tracks reduced water use	Annual
Amount	Amount	Annual
Purpose	Purpose of tracking those co-benefits	Annual
Reduced erosion	Indicator that project tracks reductions in soil erosion	Annual
Amount	Amount	Annual
Purpose	Purpose of tracking those co-benefits	Annual
Reduced energy use	Indicator that project tracks reductions in energy use	Annual
Amount	Amount	Annual
Purpose	Purpose of tracking those co-benefits	Annual
Avoided land conversion	Indicator that project tracks reductions in land conversion	Annual
Amount	Amount	Annual
Purpose	Purpose of tracking those co-benefits	Annual
Improved wildlife habitat	Indicator that project tracks improvements in wildlife habitat	Annual
Amount	Amount	Annual
Purpose	Purpose of tracking those co-benefits	Annual

Supplemental Data Submission

Project MMRV Plan

Definition of MMRV elements:

Measurement: Quantification of the greenhouse gas benefits (reduction or capture) using mathematical models and/or direct physical measurements in the field

Monitoring: Ongoing review and confirmation that the climate-smart practice has been implemented according to the agreed upon standard and documentation of any changes in the site, implementation, or GHG emissions impacts over time

Reporting: Documenting and sharing monitoring and measurement results with project partners, the recipient, and any third-party verification organization

Verification: Independent confirmation that measurement, monitoring and reporting information are complete, accurate and reliable.

Projects must submit an MMRV plan that includes details about how each of the following are addressed:

- Quantification approach, including:
  - GHG models used
  - GHG measurement plan (if applicable)
  - Approach to quantifying additional environmental benefits, if applicable (e.g., water quality, habitat)
- Verification approach:
  - Compliance criteria
  - Verification plan/methodology
- Approach to ensuring:
  - Additionality
  - Permanence
  - Leakage
  - Impacts of weather
- Plan for non-compliance

If the project is using a specific MMRV methodology or approach developed by the recipient, a project partner, or an outside organization, the project can submit documentation associated with the methodology as long as the documentation addresses each of the above categories.

If the project is tracking other environmental benefits (as reported in the *Additional Environmental Benefits* worksheet), include a description of the methodology and tools used to track and report on these benefits.

Field modeled GHG benefit reports

Results from any models besides COMET-Planner used to estimate GHG benefits must also be submitted as a separate report. This includes projects running COMET-Farm. The full results of any model can be submitted in the native/standard format generated by the modeling tool and must include the following Unique IDs in the report or in the file name: State, County, Farm ID, Tract ID, Field ID.

Field direct measurement results

For any direct physical measurements in the field, measurement results must be submitted as a separate report and must include the following Unique IDs in the report or in the file name: State, County, Farm ID, Tract ID, Field ID. Measurement results reports must include the name of the equipment used for sampling or data collection, the name of the lab that analyzed the data, and the analytical method used.

Sample report types include soil analysis reports, summarized results of portable emissions analyzers or flux towers, water quality analyses, and plant species counts. These could be collected for the purposes of determining GHG emission reductions or carbon sequestration amounts, for calibration of tools or models, for tracking other environmental benefits, or for other reasons.

Data Descriptions

This section provides descriptions and allowable response options for each data element. The guide also indicates whether each data element is required, applicable at times, or optional; as well as how frequently each data element must be updated.

Unique IDs

Project ID: Unique ID at the project level – "Award Identifying Number" shown on award documentation
Partner ID: Unique ID at the partner level – use EIN; if no EIN, a unique ID will be assigned for use in these reports
State or territory of operation: State or territory name
County of operation: Physical county name
Farm ID: Unique ID at the operation level assigned by Farm Service Agency (FSA)
Tract ID: Unique ID at the tract level assigned by FSA
Field ID: Unique ID at the field level assigned by FSA

Project Summary

Commodity type

Data element name: Commodity type

Reporting question: What climate-smart commodity types are produced by this project?

Description: Type of commodity incentivized by the project. These commodities include those for whom farmers are directly receiving incentives or other types of marketing support. See full list of commodity options in Appendix B. List one commodity per row.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: FSA commodity list

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Commodity sales

Data element name: Commodity sales

Reporting question: Did project activities result in sales this quarter of the commodity(ies) produced by this project?

Description: Indicator of sales of commodity(ies) related to project activities. If sales are reported, complete the *Marketing Activities* worksheet (Table 3) as part of the quarterly performance report.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Farms enrolled

Data element name: Farms enrolled

Reporting question: Did the project enroll any producers or fields this quarter?

Description: Indicator that the project enrolled producers or fields. If enrollment activities occurred this quarter, complete the *Producer Enrollment* and *Field Enrollment* worksheets (Tables 4 and 5) as part of the quarterly performance report.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG calculation methods

Data element name: GHG calculation methods

Reporting question: What methods is the project using to calculate GHG benefits?

Description: List the way(s) that GHG benefits are being measured and calculated by the project this quarter.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Models
- Direct field measurements
- Both

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG cumulative calculation

Data element name: GHG cumulative calculation

Reporting question: What method(s) was used to calculate the total cumulative GHG benefits reported here?

Description: List the method(s) that was used to calculate the total cumulative GHG benefits reported by the project this quarter.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Models
- Direct field measurements
- Both

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative GHG benefits

Data element name: Cumulative GHG benefits

Reporting question: What are the project's estimated total GHG emission reductions (CO2eq) to date?

Description: Total cumulative estimated greenhouse gas emission reductions from practice implementation. This is updated quarterly. If there are no changes, enter the same number as the previous quarter.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative carbon stock

Data element name: Cumulative carbon stock

Reporting question: How much carbon has the project sequestered to date?

Description: Estimated total cumulative change in carbon stock based on practice implementation. This is updated quarterly. If there are no changes, enter the same numbers as the previous quarter. Conversion rate is one ton of carbon = 3.67 tons of CO_2eq.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative CO2 benefit

Data element name: Cumulative CO2 benefit

Reporting question: What are the project's estimated total cumulative CO2 emission reductions to date?

Description: Estimated total cumulative carbon dioxide emission reductions based on practice implementation. This is updated quarterly. If there are no changes, enter the same number as the previous quarter.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative CH4 benefit

Data element name: Cumulative CH4 benefit

Reporting question: What are the project's estimated total CH4 emission reductions to date?

Description: Estimated total cumulative methane reduction based on practice implementation. This is updated quarterly. If there are no changes, enter the same numbers as the previous quarter. Conversion rate is one ton of CH_4 = 25 tons of CO_2eq.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CH4 reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative N20 benefit

Data element name: Cumulative N2O benefit

Reporting question: What are the project's estimated total N2O emission reductions to date?

Description: Estimated total cumulative nitrous oxide reduction based on practice implementation. This is updated quarterly. If there are no updated numbers enter the same number as the previous quarter. Conversion rate is one ton of N_2O = 298 tons of CO_2eq.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons N2O reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Offsets produced

Data element name: Offsets produced

Reporting question: How many carbon offsets have been produced in the project?

Description: Total carbon offsets produced by enrolled project fields during the quarter. Offsets are defined as having been verified and certified using an accepted standard and sold into the carbon marketplace.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Offsets sale

Data element name: Offsets sale

Reporting question: To what marketplace(s) were carbon offsets sold?

Description: Marketplaces to which carbon offsets produced by enrolled project fields were sold. Offsets are defined as having been verified and certified using an accepted standard and sold into the carbon marketplace. List each marketplace name. Separate names with commas.

Data type: Text

Select multiple values: NA

Measurement unit: Name

Allowed values: Text

Logic: Respond if >0 to 'Offsets produced'

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Offsets price

Data element name: Offsets price

Reporting question: What was the average price of carbon received for offsets?

Description: Average price per metric ton paid for carbon offsets produced by enrolled project fields. Offsets are defined as having been verified and certified using an accepted standard and sold into the carbon marketplace.

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars per metric ton

Allowed values: 0-500

Logic: Respond if >0 to 'Offsets produced'

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Insets produced

Data element name: Insets produced

Reporting question: How many carbon insets have been produced in the project?

Description: Total carbon insets produced by enrolled fields during the quarter. Insets are defined as having been verified and certified using an accepted standard and accounted for within Scope 3 emissions for a firm.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cost of on-farm TA

Data element name: Cost of on-farm TA

Reporting question: What is the total amount that has been spent to provide on-farm TA?

Description: Total cost of any field- or practice-specific technical assistance provided by the project (by recipient or partners) to any producers. This is updated quarterly. If there are no changes, enter the same number as the previous quarter.

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

Allowed values: $0-$50,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

MMRV cost

Data element name: MMRV cost

Reporting question: What is the total amount that has been spent on MMRV activities?

Description: Total cost of all MMRV activities paid for by the project (recipient or partners). MMRV components are defined as measurement (calculations or estimations of GHG emissions), monitoring (ongoing review and confirmation that the climate-smart practices have been implemented according to the agreed upon standard and documentation of any changes in the site, implementation, or GHG emissions impacts over time), reporting (documenting and sharing monitoring and measurement results with project partners, the recipient, and any third-party verification organization), and verification (independent confirmation that measurement, monitoring and reporting information are complete, accurate and reliable). This is updated quarterly. If there are no changes, enter the same number as the previous quarter.

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

Allowed values: $0-$50,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG monitoring method

Data element name: GHG monitoring 1-5

Reporting question: How did the project monitor GHG benefits?

Description: Up to the five most common forms of monitoring GHG benefits used this quarter as part of MMRV requirements. Monitoring is defined as ongoing review and confirmation that the climate-smart practice has been implemented according to the agreed upon standard and documentation of any changes in the site, implementation, or GHG emissions impacts over time. Include up to 5 methods, based on which methods are most commonly used for this project. The worksheet provides five columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 5 GHG monitoring methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other GHG monitoring methods as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Drones
- Ground-level photos and videos
- On-farm visit
- Plot-based sampling
- Producer records or attestation
- Satellite monitoring or remote sensing
- Soil metagenomics
- Soil sensors
- Water sensors
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG reporting method

Data element name: GHG reporting 1-5

Reporting question: How did the project track and report implementation of practices to reduce GHG emissions?

Description: Up to the five most common forms of tracking and reporting on practice implementation used this year as part of MMRV requirements. Reporting is defined as documenting and sharing monitoring and measurement results with project partners, the recipient, and any third-party verification organization. Include up to 5 methods, based on which methods are most commonly used for this project. The worksheet provides five columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 5 GHG reporting methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other GHG reporting methods as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Automated devices
- Email
- Mobile app
- Paper
- Third-party actors
- Website
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG verification method

Data element name: GHG verification method 1-5

Reporting question: How did the project verify implementation of practices to reduce GHG emissions?

Description: Up to the five most common forms of verifying practice implementation used this year as part of MMRV requirements. Verification is defined as independent confirmation that measurement, monitoring and reporting information are complete, accurate and reliable. Include up to 5 methods, based on which methods are most commonly used for this project. The worksheet provides five columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 5 GHG verification methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other GHG verification methods as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Artificial intelligence
- Audit by recipient
- Computer modeling
- Photos
- Record audit
- Satellite imagery
- Site or field visit
- Third-party audit
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Partner Activities

Unique IDs	
Partner ID	Unique Project ID for each partner

Partner name	
Data element name: Name of partner organization	**Reporting question:** What is the official name of the recipient or partner organization?
Description: Legal name of recipient or partner organization	
Data type: Text	**Select multiple values**: NA
Measurement unit: NA	**Allowed values:** Text
Logic: None – all respond	**Required:** Yes
Data collection level: Partner	**Data collection frequency:** Partnership initiation

Partner type	
Data element name: Type of partner organization	**Reporting question:** What type of organization is this?
Description: Legal/financial structure of recipient or partner organization	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Commodity groups (501c5) • For-profit • Individual • Nonprofit • State or local agency • Tribal agency • University
Logic: None – all respond	**Required:** Yes
Data collection level: Partner	**Data collection frequency:** Partnership initiation

Partner POC	
Data element name: Partner POC	**Reporting question:** Who is the point of contact for this project at the recipient or partner organization?
Description: Name of a point of contact for the recipient or partner organization	
Data type: Text	**Select multiple values**: NA
Measurement unit: NA	**Allowed values:** Text
Logic: None – all respond	**Required:** Yes
Data collection level: Partner	**Data collection frequency:** Partnership initiation; update as necessary

Partner POC email	
Data element name: Partner POC email	**Reporting question:** What is the point of contact's email address?
Description: Email of the point of contact for the recipient or partner organization	
Data type: Text	**Select multiple values**: NA
Measurement unit: NA	**Allowed values:** Text
Logic: None – all respond	**Required:** Yes
Data collection level: Partner	**Data collection frequency:** Partnership initiation; update as necessary

Partnership start date

Data element name: Partnership start date | **Reporting question:** When did the partnership start?

Description: Date that the partner organization and the recipient began formally partnering on the project

Data type: Date | **Select multiple values**: NA

Measurement unit: MM/DD/YYYY | **Allowed values:** 01/01/2023 – 12/31/2030

Logic: No response for recipient | **Required:** Yes

Data collection level: Partner | **Data collection frequency:** Partnership initiation

Partnership end date

Data element name: Partnership end date | **Reporting question:** When did the partnership end?

Description: Date that the partner organization and the recipient stopped formally partnering on the project

Data type: Date | **Select multiple values**: NA

Measurement unit: MM/DD/YYYY | **Allowed values:** 01/01/2023 – 12/31/2030

Logic: No response for recipient | **Required:** Yes

Data collection level: Partner | **Data collection frequency:** Partnership end quarter

New partnership

Data element name: New partnership | **Reporting question:** Is this a new partnership?

Description: A new partnership means that the recipient and the partner organization have not had a formal working relationship (under contract or on a grant) prior to the start of the project.

Data type: List | **Select multiple values**: No

Measurement unit: Category | **Allowed values:**

- Yes
- No
- I don't know

Logic: No response for recipient | **Required:** Yes

Data collection level: Partner | **Data collection frequency:** Partnership initiation

Partner total requested

Data element name: Partner total requested | **Reporting question:** What is the total amount of funding the partner has requested to date from this project?

Description: Cumulative (total) amount of funds that the partner has requested reimbursement for from the recipient from the start of the partnership to the end of the reporting quarter. For each quarter's data entry, the value must be the sum of all previous entries plus the amount of funds requested in the reporting quarter. If there are no changes, report the value from the previous quarter.

Data type: Decimal | **Select multiple values**: NA

Measurement unit: Dollars | **Allowed values:** $0-$100,000,000

Logic: No response for recipient | **Required:** Yes

Data collection level: Partner | **Data collection frequency:** Quarterly

Total match contribution

Data element name: Total match contribution

Reporting question: What is the total match value the organization has contributed to the project to date?

Description: Cumulative (total) value of funds and in-kind contributions (e.g., staff time, inputs, equipment rental, marketing support) that the partner has provided as a project match contribution from the start of the partnership to the end of the reporting quarter. For each quarter's data entry, the value must be the sum of all previous entries plus match contributions in the reporting quarter. If there are no changes, report the value from the previous quarter.

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

Allowed values: $0-$100,000,000

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Total match incentives

Data element name: Total match incentives

Reporting question: What is the total value of match provided by this organization for producer incentives?

Description: Cumulative (total) value of funds for incentive payments directly to producers that the partner has provided as a project match contribution from the start of the partnership to the end of the reporting quarter. For each quarter's data entry, the value must be the sum of all previous entries plus match incentives in the reporting quarter. If there are no changes, report the value from the previous quarter.

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

Allowed values: $0-$100,000,000

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Match type

Data element name: Match type 1-3

Reporting question: What types of match contributions has the organization provided to the project?

Description: Types of match contributions *other than incentives* provided directly to producers by the organization from the start of the partnership to the end of the reporting quarter. Enter up to the top three (in dollar value) types of match contributions provided. In-kind staff time could be used for technical assistance, marketing assistance, or other support to producers. Production inputs include seed, fertilizer, pesticides, equipment and other inputs for use in the field. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 match types are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other match types as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Equipment rental or use
- In-kind staff time
- Production inputs (reduced cost or free)
- Program income
- Software
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Match amount

Data element name: Match amount 1-3

Reporting question: What is the value of the match contributions the organization provided to the project?

Description: Cumulative (total) value of funds for each match type that the organization has provided as a project match contribution from the start of the partnership to the end of the reporting quarter. Enter amounts for up to the top three (in dollar value) match types. The worksheet provides three columns for this data element. Enter one value for each column. If fewer than 3 match types are used, leave unnecessary columns blank.

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

Allowed values: $0-$100,000,000

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Training type provided

Data element name: Training type 1-3 provided

Reporting question: What types of training has the organization provided to project partners?

Description: Types of training provided to the project partner as a result of participating in the project during the past quarter. Training can come from the recipient, a project partner organization (including other divisions of their own organization, or an outside organization. Enter up to the top three (in dollar value) types of partner training provided. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 training types are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other training types as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Data collection
- Grant reporting
- Marketing opportunities
- Providing financial assistance
- Providing technical assistance
- Writing producer contracts
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Activity by partner

Data element name: Activity 1-3 by partner

Reporting question: What types of activities has the organization provided to the project?

Description: Types of activities that the recipient or partner organization has provided during the reporting quarter. Enter up to the top three (in dollar value) types of activities undertaken. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 activity types are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other activity types as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Marketing support
- MMRV support
- Producer outreach for enrollment
- Technical assistance to producers
- Training to other partner organizations
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Activity cost

Data element name: Activity cost 1-3

Reporting question: What is the value of the activities this organization has provided to the project?

Description: Cumulative (total) cost of each activity type that the organization has undertaken or offered from the start of the partnership to the end of the reporting quarter. Enter amounts for up to the top three (in dollar value) activity types. The worksheet provides three columns for this data element. Enter one value for each column. If fewer than 3 activity types are provided, leave unnecessary columns blank.

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

Allowed values: $0-$100,000,000

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Products supplied

Data element name: Products supplied

Reporting question: What products or supplies were provided to enrolled fields?

Description: Name(s) of products supplied to enrolled producers as incentives or matching contributions. Enter the name of each product, including its brand. Separate each product name with a comma. If no products or supplies were provided by the organization, leave the column blank.

Data type: Text

Select multiple values: NA

Measurement unit: Name

Allowed values: Text

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Product source

Data element name: Product source

Reporting question: Which companies provided the supplies?

Description: Name of firm or company from which supplies were obtained.

Data type: Text

Select multiple values: NA

Measurement unit: Name

Allowed values: Text

Logic: Respond if text entered for 'Products supplied'

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Marketing Activities

Commodity type	
Data element name: Commodity type	**Reporting question:** What type of commodity is produced by the farmers enrolled in this project?
Description: List a single commodity produced or marketed through incentives from this project. If multiple commodities are produced by the project, use additional rows of the worksheet to report each commodity. Use the FSA commodity list in Appendix B and choose the commodity from the list.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** FSA commodity list
Logic: None – all respond	**Required:** Yes
Data collection level: Project	**Data collection frequency:** Quarterly

Marketing channel type	
Data element name: Marketing channel type	**Reporting question:** What type of marketing channel is used to sell this commodity?
Description: List a single type of marketing channel used to sell the commodity produced by farmers enrolled in the project. If a single commodity is marketed through multiple channels, use additional rows of the worksheet to report each combination of commodity and marketing channel. If "other" is chosen, use the additional column to enter the other marketing channel type(s) as free text.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Agricultural marketing board • Biorefinery • Commodity broker • Direct to consumer • Direct to institution • Direct to restaurant • Distributor (including grain elevators) • Food hub or cooperative • Food processor • Non-food byproducts processor • Retailer • USDA • Other (specify)
Logic: None – all respond	**Required:** Yes
Data collection level: Project	**Data collection frequency:** Quarterly

Number of buyers	
Data element name: Number of buyers	**Reporting question:** How many buyers are there in this marketing channel?
Description: List the number of individual firms or buyers in this marketing channel.	
Data type: Integer	**Select multiple values**: No
Measurement unit: Count	**Allowed values:** 1-500
Logic: None – all respond	**Required:** Yes
Data collection level: Project	**Data collection frequency:** Quarterly

Names of buyers

Data element name: Names of buyers

Reporting question: What are the names of all of the buyers in this marketing channel?

Description: Provide the names of all buyers in this marketing channel. Separate each name with a comma.

Data type: Text

Select multiple values: NA

Measurement unit: Name

Allowed values: Text

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Marketing channel geography

Data element name: Marketing channel geography

Reporting question: What is the primary geography of the marketing channel?

Description: The primary geography of the type of marketing channel. Primary geography means the scale at which most of the activity of buying and selling happens. Local means within a single state or directly neighboring states. Regional means within a five-to-ten state area. National means across the United States. International means specific locations outside of the United States. Global means across the world or not to a specific international location.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Local
- Regional
- National
- Global

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Value sold

Data element name: Value sold

Reporting question: What is the value of the commodity sold in this marketing channel?

Description: The dollar value of the commodity sold in this marketing channel this quarter (non-cumulative).

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

Allowed values: $1-$100,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Volume sold

Data element name: Volume sold

Reporting question: What is the volume of the commodity sold in this marketing channel?

Description: The volume of the commodity sold in this marketing channel this quarter (non-cumulative).

Data type: Decimal

Select multiple values: No

Measurement unit: Number

Allowed values: 1-100,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Volume sold unit

Data element name: Volume sold unit

Reporting question: What is the unit of volume?

Description: The unit associated with the volume of the commodity sold in the marketing channel. If "other" is chosen, use the additional column to enter the appropriate unit as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Bales (500 pounds)
- Bushels
- Carcass pounds
- Gallons
- Kilograms
- Linear board feet
- Liveweight pounds
- Metric tons
- Pounds
- Short tons
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Price premium

Data element name: Price premium

Reporting question: What price premium is received for the commodity sold in this marketing channel?

Description: The price premium received for the commodity sold in this marketing channel this quarter. Price premium is the amount received above a 'business as usual' price.

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

Allowed values: $0.01-$10,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Price premium unit

Data element name: Price premium unit

Reporting question: What is the unit for the price premium?

Description: The unit associated with the price premium for the commodity sold in the marketing channel. If "other" is chosen, use the additional column to enter the appropriate unit as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Per bale (500 pounds)
- Per bushel
- Per carcass pound
- Per gallon
- Per kilogram
- Per linear board foot
- Per live pound
- Per metric ton
- Per ounce
- Per short ton
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Price premium to producer

Data element name: Price premium to producer

Reporting question: What percent of the price premium is provided to the producer for the commodity sold in this marketing channel?

Description: The percent of the price premium provided to the producer for the commodity sold in this marketing channel this quarter. Price premium is the amount received above a 'business as usual' price.

Data type: Decimal

Select multiple values: No

Measurement unit: Percent

Allowed values: 0-100

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Product differentiation method

Data element name: Product differentiation method 1-3

Reporting question: What methods are used to differentiate climate-smart commodities in this marketing channel?

Description: Provide the methods used to differentiate the climate-smart commodity in this market channel. Product differentiation methods are ways to distinguish or differentiate the climate-smart commodity in the marketplace. Include up to 3 methods, based on which methods are most commonly used for this project. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 product differentiation methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other product differentiation methods as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Certification/verification for internal insetting
- Farm certification
- Label or badge used on packaging or marketing
- Third party certification/verification
- Trademark
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Marketing method

Data element name: Marketing method 1-3

Reporting question: What methods are used to market climate-smart commodities in this marketing channel?

Description: Provide the method(s) used to market this commodity in this market channel. Marketing method is the way that potential buyers of the climate-smart commodity are engaged by the project partners as the sellers or facilitators of sale. Include up to 3 methods, based on which methods are most commonly used for this project. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 marketing methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other marketing methods as free text

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Label or badge used on packaging or marketing materials
- Marketing partnership (e.g., promotion by buyer)
- Print marketing campaign
- Social media and digital marketing campaign
- Verbal marketing campaign (e.g., radio, word of mouth)
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Marketing channel identification method

Data element name: Marketing channel identification method 1-3

Reporting question: What methods are used to generate interest in climate-smart commodities in this marketing channel?

Description: Provide the marketing channel identification method(s) used for this commodity in this market channel. Market channel identification methods are the ways that producers and project partners generate interest in purchasing the climate-smart commodity. Include up to 3 methods, based on which methods are most commonly used for this project. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 marketing channel identification methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other marketing channel identification methods as free text

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Educational tours for buyers
- In-person lead generation
- Negotiated contracts with buyers
- Partnership network or project partner
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Traceability method

Data element name: Traceability method 1-3

Reporting question: What traceability methods are used for climate-smart commodities in this channel?

Description: Provide the traceability method(s) used for the climate-smart commodity in this market channel. Traceability methods are ways to trace the climate-smart commodity or the climate-smart claims through the supply chain. Include up to 3 methods, based on which methods are most commonly used for this project. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 traceability methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other traceability methods as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Barcode or unique ID
- Blockchain
- Book and claim
- Chain of custody
- Mass balance
- Recordkeeping
- Registry with certification
- Segregation
- Supply shed
- Volume proxy
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Producer Enrollment

Unique IDs	
Farm ID	Unique Farm ID assigned by FSA
State or territory	State name (must match FSA farm enrollment data)
County of residence	County name (must match FSA farm enrollment data)

Producer data change

Data element name: Producer data change

Reporting question: Is there new/updated information for a producer who is re-enrolling in the project?

Description: Indicates that there is new or updated information for a producer who had previously enrolled in the project and is re-enrolling.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Re-enrollment

Producer start date

Data element name: Producer start date

Reporting question: When did the producer enroll in the project?

Description: Date that the producer enrolled in the project by signing their first contract.

Data type: Date

Select multiple values: NA

Measurement unit: MM/DD/YYYY

Allowed values: 01/01/2023 – 12/31/2030

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

Producer name

Data element name: Producer name

Reporting question: What is the name of producer enrolled in the project?

Description: Name of the producer enrolled in the project; the name must match the name contained in the customer's Business Partner record and the Farm Operating Plan in FSA Business File for that Farm ID.

Data type: Text

Select multiple values: NA

Measurement unit: NA

Allowed values: Text

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

Underserved status

Data element name: Underserved status

Reporting question: Is this producer considered an underserved and/or a small producer?

Description: Underserved status of the primary operator of the enrolled operation. Underserved producers generally include beginning farmers, socially disadvantaged farmers, veteran farmers, and limited resource farmers; women farmers and producers growing specialty crops are generally also included in these categories. Small farms are generally those with less than $350,000 in annual gross cash farm income. Indicate whether this producer is considered underserved, a small producer, or both underserved and a small producer. Use "I don't know" if the producer declines to answer. Departmental Regulation 4370-001 provides USDA's policies for collecting demographic data, including race, ethnicity and gender. Providing demographic information is voluntary and at the discretion of the customer. Demographic information is used by USDA for statistical purposes only and will not be used to determine an applicant's eligibility for programs or services for which they apply.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes, underserved
- Yes, small producer
- Yes, underserved and small producer
- No
- I don't know

Logic: None – all respond

Required: No

Data collection level: Producer

Data collection frequency: Initial enrollment

Total area

Data element name: Total area

Reporting question: What is the total area of the farm?

Description: Total area of the farm associated with the Farm ID. Report total area of the farm, even if only a portion of the farm is enrolled in the project. If a producer is enrolled in the project for multiple years, review the total area each time a new contract is signed and provide any necessary updates.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Less than 1 acre
- 1 to 9 acres
- 10 to 49 acres
- 50 to 69 acres
- 70 to 99 acres
- 100 to 139 acres
- 140 to 179 acres
- 180 to 219 acres
- 220 to 259 acres
- 260 to 499 acres
- 500 to 999 acres
- 1,000 to 1,999 acres
- 2,000 to 4,999 acres
- 5,000 or more acres

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment and subsequent enrollment(s), if applicable

Total crop area

Data element name: Total crop area	**Reporting question:** What percent of the current operation is cropland?
Description: Area of the total farm that is currently used as cropland. If a producer is enrolled in the project for multiple years, review the total crop area each time a new contract is signed and provide any necessary updates.	
Data type: Integer	**Select multiple values:** No
Measurement unit: Acres	**Allowed values:** 0-100,000
Logic: None – all respond	**Required:** Yes
Data collection level: Producer	**Data collection frequency:** Initial enrollment and subsequent enrollment(s), if applicable

Total livestock area

Data element name: Total livestock area	**Reporting question:** What amount of the current operation is used for livestock (by area)?
Description: Area of the total farm that is currently used for pasture, grazing, rangeland; or animal housing, feeding or milking. If a producer is enrolled in the project for multiple years, review the total livestock area each time a new contract is signed and provide any necessary updates.	
Data type: Integer	**Select multiple values:** No
Measurement unit: Acres	**Allowed values:** 0-100,000
Logic: None – all respond	**Required:** Yes
Data collection level: Producer	**Data collection frequency:** Initial enrollment and subsequent enrollment(s), if applicable

Total forest area

Data element name: Total forest area	**Reporting question:** What amount of the current operation is forested (by area)?
Description: Area of the total farm that is currently considered forest land use. Forest land use means that at least 10% of the land area is covered in trees that will be at least 13 feet tall when mature. If a producer is enrolled in the project for multiple years, review the total forest area each time a new contract is signed and provide any necessary updates.	
Data type: Integer	**Select multiple values:** No
Measurement unit: Acres	**Allowed values:** 0-100,000
Logic: None – all respond	**Required:** Yes
Data collection level: Producer	**Data collection frequency:** Initial enrollment and subsequent enrollment(s), if applicable

Livestock type

Data element name: Livestock type 1-3

Reporting question: What types of livestock are raised on the farm?

Description: Up to top three types of livestock (by head count) on the farm. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If there are fewer than 3 livestock types, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other livestock types as free text. If a producer is enrolled in the project for multiple years, review the livestock type each time a new contract is signed and provide any necessary updates.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Alpacas
- Beef cows
- Beefalo
- Buffalo or bison
- Chickens (broilers)
- Chickens (layers)
- Dairy cows
- Deer
- Ducks
- Elk
- Emus
- Equine
- Geese
- Goats
- Honeybees
- Llamas
- Reindeer
- Sheep
- Swine
- Turkeys
- Other (specify)

Logic: Respond if 'Total livestock area' >0

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment and subsequent enrollment(s), if applicable

Livestock head

Data element name: Livestock head 1-3

Reporting question: How many livestock (by type) are on this operation?

Description: Average annual head count for each type of livestock. Enter amounts for up to the top three livestock types by number. The worksheet provides three columns for this data element. Enter one value for each column. If there are fewer than 3 livestock types, leave unnecessary columns blank. If a producer is enrolled in the project for multiple years, review the average annual head count each time a new contract is signed and provide any necessary updates.

Data type: Integer

Select multiple values: NA

Measurement unit: Head count

Allowed values: 1-10,000,000

Logic: Respond if 'Total livestock area' >0

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment and subsequent enrollment(s), if applicable

Organic farm

Data element name: Organic farm

Reporting question: Is any part of the farm currently USDA-certified organic or transitioning to USDA-certified organic?

Description: USDA-certified organic means that the farm has been certified by an accredited organic certifying agent or is transitioning to USDA-certified organic by not using any of the prohibited substances. Yes means that some or all of the farm is certified organic or transitioning to certified organic. No means that no part of the farm is certified organic or transitioning to certified organic. If a producer is enrolled in the project for multiple years, review the organic certification status of the farm each time a new contract is signed and provide any necessary updates.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: No

Data collection level: Producer

Data collection frequency: Initial enrollment and subsequent enrollment(s), if applicable

Organic fields

Data element name: Organic fields

Reporting question: Are any of the fields enrolled in the project currently USDA-certified organic or transitioning to USDA-certified organic?

Description: USDA-certified organic means that the operation has been certified by an accredited organic certifying agent or is transitioning to USDA-certified organic by not using any of the prohibited substances. Yes means that some or all of the fields enrolled in the project are certified organic or transitioning to certified organic. No means that no part of the fields enrolled in the project are certified organic or transitioning to certified organic. If a producer is enrolled in the project for multiple years, review the organic certification status of the enrolled fields each time a new contract is signed and provide any necessary updates.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Organic operation'

Required: No

Data collection level: Producer

Data collection frequency: Initial enrollment and subsequent enrollment(s), if applicable

Producer motivation

Data element name: Producer motivation

Reporting question: Which of the following was the primary reason the producer enrolled in this project?

Description: Primary operator's motivation for enrolling in the project.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Financial benefit
- Environmental benefit
- New market opportunity
- Partnerships or networks
- Other

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

Producer outreach

Data element name: Producer outreach 1-3

Reporting question: What types of outreach were provided to producers?

Description: Up to three most common types of outreach provided to producer prior to enrollment. Outreach activities are those focused on identifying and enrolling producers in the project. Outreach can come from the recipient or project partners. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If there are fewer than 3 outreach types, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other outreach types as free text.

Data type: List

Select multiple values: Yes

Measurement unit: Category

Allowed values:

- Commodity organizations
- Conferences
- Cooperative extension
- Digital communications and resources
- Education workshops, field days, and town halls
- Existing partner networks
- Farm visits and one-on-one meetings
- General advertising
- Peer referrals and producer groups
- Phone calls
- Print communications and resources
- Retailers
- State agencies
- Targeted messaging using proprietary data
- Technical service providers
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF experience

Data element name: CSAF experience

Reporting question: Has the primary operator implemented CSAF practices in the last ten years anywhere on the farm?

Description: Has this farm implemented climate-smart agriculture or forestry (CSAF) practices anywhere on the farm in the past 10 years or since the current primary operator took control (whichever time period is shorter)? CSAF practices are included in a list in Appendix A.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF federal funds

Data element name: CSAF federal funds

Reporting question: Were prior CSAF practices supported by federal funds?

Description: If this farm (under the primary operator) has implemented CSAF practices in the last ten years, was implementation supported by federal funds? Federal funds are defined as being from programs including, but not limited to, those from the Natural Resources Conservation Service ((NRCS), including through Environmental Quality Incentives Program (EQIP), Conservation Stewardship Program (CSP), Regional Conservation Partnership Program (RCPP), or related programs), the Farm Service Agency Conservation Reserve Program (CRP), as well as funds from other USDA programs or other federal agencies.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'CSAF experience'

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF state or local funds

Data element name: CSAF state or local funds

Reporting question: Were prior CSAF practices supported by state or local funds?

Description: If this farm (under the primary operator) has implemented CSAF practices in the last ten years, was implementation supported by state funds? State or local funds are those from state departments of agriculture or other state agencies, local water quality districts and other local agencies.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'CSAF experience'

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF nonprofit funds

Data element name: CSAF nonprofit funds

Reporting question: Were CSAF practices supported by nonprofit funds?

Description: If this farm (under the primary operator) has implemented CSAF practices in the last ten years, was implementation supported by nonprofit funds? Nonprofit funds are those offered directly from a nonprofit organization to a producer.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'CSAF experience'

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF market incentives

Data element name: CSAF market incentives	**Reporting question:** Were CSAF practices supported by market incentives?
Description: If this farm (under the primary operator) has implemented CSAF practices in the last ten years, was implementation supported by market incentives? Market incentives include premiums paid by a commodity buyer or by a consumer based on branding or labeling as a climate-smart commodity.	
Data type: List	**Select multiple values:** No
Measurement unit: Category	**Allowed values:** • Yes • No • I don't know
Logic: Respond if yes to 'CSAF experience'	**Required:** Yes
Data collection level: Producer	**Data collection frequency:** Initial enrollment

Field Enrollment

Unique IDs

Farm ID	Unique Farm ID assigned by FSA
Tract ID	Unique Tract ID assigned by FSA
Field ID	Unique Field ID assigned by FSA
State or territory of field	State name (must match FSA farm enrollment data)
County of field	County name (must match FSA farm enrollment data)
Prior Field ID, if applicable	Prior Field ID assigned by FSA if there has been reconstitution of the farm resulting in a new Field ID during the field's enrollment in the project

Field data change

Data element name: Field data change

Reporting question: Has the information previously reported for this field changed?

Description: Indicator that this entry is being used to report any relevant changes, such as a new Field ID number or changes to the commodity or practice combinations, for a field that has previously been enrolled in the project.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Re-enrollment

Contract start date

Data element name: Contract start date

Reporting question: What is the start date of the contract with the producer that includes this field?

Description: Start date listed on the contract that enrolls the field in the project.

Data type: Date

Select multiple values: NA

Measurement unit: MM/DD/YYYY

Allowed values: 01/01/2023 – 12/31/2030

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Total field area

Data element name: Total field area

Reporting question: What is the total size of the enrolled field?

Description: Total size of the field enrolled with the project.

Data type: Decimal

Select multiple values: No

Measurement unit: Acres

Allowed values: .01-500

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Commodity category

Data element name: Commodity category

Reporting question: What category of commodity(ies) is (are) produced from this field?

Description: Category of commodity(ies) produced in field enrolled in the project

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Crops
- Livestock
- Trees
- Crops and livestock
- Crops and trees
- Livestock and trees
- Crops, livestock and trees

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Commodity type

Data element name: Commodity type

Reporting question: What type of commodity is produced from this field?

Description: Type of commodity produced in field enrolled in the project. See full list in Appendix B. The worksheet provides a drop-down list of the allowed values. Choose the appropriate value. Enter additional commodities in subsequent rows.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: FSA commodity list

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Baseline yield

Data element name: Baseline yield

Reporting question: What is the baseline yield of this field?

Description: Average annual yield of commodity in 3 years prior to enrollment. Provide yield for the enrolled field if possible. If not at field level, provide average annual yield for the specific commodity for the operation.

Data type: Decimal

Select multiple values: No

Measurement unit: Production per acre or animal

Allowed values: .01-100,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Baseline yield unit

Data element name: Baseline yield unit

Reporting question: Baseline yield unit

Description: Unit of average annual yield of commodity in enrolled field in 3 years prior to enrollment. The worksheet provides a drop-down list of choices for this data element. If "other" is chosen, use the additional column to enter the appropriate yield unit as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Animal units per acre
- Bushels per acre
- Carcass pounds per animal
- Head per acre
- Hundred-weights (or pounds) per head
- Linear feet per acre
- Liveweight pounds per animal
- Pounds per acre
- Tons per acre
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Baseline yield location

Data element name: Baseline yield location

Reporting question: For what portion of the operation is the baseline yield being reported?

Description: Location of the reported average annual yield of commodity in 3 years prior to enrollment. If "other" is chosen, use the additional column to enter the appropriate location as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Enrolled field
- Whole operation
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Field land use

Data element name: Field land use

Reporting question: What is this field's land use history?

Description: Prior to enrollment, what was the most common land use for this field in the past 3 years?

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Crop land
- Forest land
- Non-agriculture
- Other agricultural land
- Pasture
- Range

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Field irrigated

Data element name: Field irrigated	**Reporting question:** What is this field's irrigation history?
Description: Prior to enrollment, what was the most common irrigation practice on this field the past 3 years?	
Data type: List	**Select multiple values:** No
Measurement unit: Category	**Allowed values:** • No irrigation • Center pivot • Drip-subsurface • Drip-surface • Flood/border • Furrow/ditch • Lateral/linear sprinklers • Micro-sprinklers • Seepage • Side roll • Solid set sprinklers • Supplemental • Surface • Traveling gun/towline • Wheel Line • Other
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Initial enrollment

Field tillage

Data element name: Field tillage	**Reporting question:** What is this field's tillage history?
Description: Prior to enrollment, what was the most common tillage approach during the past 3 years?	
Data type: List	**Select multiple values:** No
Measurement unit: Category	**Allowed values:** • None • Conventional, inversion • Conventional, vertical • No-till, direct seed • Reduced till, inversion • Reduced till, vertical • Strip till • Other
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Initial enrollment

Practice past extent - farm

Data element name: Practice past extent - farm

Reporting question: What percent of the farm has implemented this CSAF practice (combination) previously?

Description: Prior to enrollment, on what portion of the whole farm had this (these) CSAF practice(s) ever been used by the primary operator? If multiple practices are planned to be implemented in this field, enter the value that best corresponds to the farm's prior experience with the planned set of practices.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Never used
- Used on less than 25% of operation
- Used on 25-50% of operation
- Used on 51-75% of operation
- Used on more than 75% of operation

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Field any CSAF practice

Data element name: Field any CSAF practice

Reporting question: What is this field's prior experience with CSAF practices?

Description: Prior to enrollment, have any CSAF practice or practices been used in this field in the past 3 years? CSAF practices are included in a list in Appendix A.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice past use - this field

Data element name: Practice past use - this field

Reporting question: Have this CSAF practice (combination) been implemented previously in this field?

Description: Prior to enrollment, had this (these) CSAF practice(s) been used in this field in the in the past 3 years? Enter yes if all of the practices had been used previously in this field; enter some if multiple practices are being implemented and one or more, but not all of the practices had been used previously in this field; and enter no if none of the practices had been used previously in this field.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- Some
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice type

Data element name: Practice type 1-7

Reporting question: What CSAF practice is being implemented in this field through the project?

Description: Which CSAF practice or practices will be implemented on this field as part of enrollment in the project? CSAF practices are included in a list in Appendix A. The worksheet provides seven columns for this data element. Enter one value for each column. If there are fewer than 7 practices being implemented on this field through enrollment in the project, leave unnecessary columns blank.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: See list in Appendix A

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice standard

Data element name: Practice standard 1-7

Reporting question: What standard does the CSAF practice follow?

Description: Is the CSAF practice being implemented on the field as part of enrollment in the project following a defined practice standard? The worksheet provides seven columns for this data element. Enter one value for each column, corresponding to the practice types entered in the previous columns. If there are fewer than 7 practices being implemented on this field through enrollment in the project, leave unnecessary columns blank.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- NRCS
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Planned practice implementation year

Data element name: Practice 1-7 implementation year

Reporting question: What year is the CSAF practice planned to be implemented?

Description: Year that the CSAF practice is planned to be implemented on the field. Use 2022 for early adopters, defined as fields that have the practice actively implemented in 2022 (prior to contract being signed for this project). The worksheet provides seven columns for this data element. Enter one value for each column, corresponding to the practice types entered in the previous columns. If there are fewer than 7 practices being implemented on this field through enrollment in the project, leave unnecessary columns blank.

Data type: Integer

Select multiple values: No

Measurement unit: Year

Allowed values: 2022-2030

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice extent

Data element name: Practice 1-7 extent

Reporting question: To what extent is the practice implemented?

Description: Total area, length, or head where the practice is being implemented in the field specified by the contract.

Data type: Decimal

Select multiple values: No

Measurement unit: Extent

Allowed values: .01-100,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice extent unit	
Data element name: Practice 1-7 extent unit	**Reporting question:** Unit for extent of practice implementation
Description: Unit for extent of practice implementation on the field specified by the contract. If "other" is chosen, use the additional column to enter the appropriate unit.	
Data type: List	**Select multiple values:** No
Measurement unit: Category	**Allowed values:** • Acres • Head of livestock • Linear feet • Square feet • Other (specify)
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Initial enrollment

CSAF Practice Sub-questions

For certain practices, additional questions are asked that provide information necessary to estimate greenhouse gas benefits from implementation of the practice. See Table 11 in the *CSAF Practice Sub-questions* section for descriptions of individual questions to be answered depending on the CSAF practices selected.

Farm Summary

Unique IDs

Farm ID	Unique Farm ID assigned by FSA
State or territory	State name (must match FSA farm enrollment data)
County of residence	County name (must match FSA farm enrollment data)

Producer TA received

Data element name: Producer TA received 1-3

Reporting question: What types of technical assistance were provided to this producer?

Description: Did the recipient or any partner provide technical assistance (TA) to the producer this year? Technical assistance is any training, education, capacity building or other support provided by any project partner(s) directly to producers enrolled in the project. List up to the top three most common types of TA provided to this producer. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If there are fewer than 3 TA types, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other TA types as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Demonstration plots
- Equipment demonstrations
- Group field days or in-person field workshops
- Hotline
- One-on-one enrollment assistance
- One-on-one field visits
- One-on-one producer mentorship
- Producer networks and peer-to-peer groups
- Retailer consultation
- Social media/digital tools
- Train-the-trainer opportunities
- Virtual meetings or field days
- Webinars and videos
- Written materials
- None
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Producer incentive amount

Data element name: Producer incentive amount

Reporting question: What is the total value of financial incentives provided to this producer?

Description: Total incentive payment received by the producer from USDA project funds for the year (non-cumulative). Do not include incentive payments made with partner match funds.

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

Allowed values: $0-$5,000,000

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Incentive reason

Data element name: Incentive reason 1-4

Reporting question: Why were incentives provided to this producer?

Description: List up to four reasons for producer incentive payments. List the top 4 based on total value of the incentive for each reason. The worksheet provides four columns with a drop-down list of the allowed values. Choose one value for each column. If there are fewer than 4 reasons, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other reasons as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Avoided conversion
- Conference or training attendance
- Demographics/equity payment
- Enrollment
- Foregone revenue
- Historic data collection
- Identity preservation (supply chain tracing)
- Implementation of practices
- MMRV (e.g., data collection, reporting)
- Passing audit
- Price premium on output
- Yield change
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Incentive structure

Data element name: Incentive structure 1-4

Reporting question: What are the units for the financial incentives provided to this producer?

Description: List the structures (units) corresponding to the top 4 (by dollar value) incentive payments to producers. Production unit is weight or volume (bushel, kilogram, ton). The worksheet provides four columns with a drop-down list of the allowed values. Choose one value for each column. If there are fewer than 4 structure types, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other structure types as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Flat rate
- Per animal head
- Per area
- Per length
- Per production unit
- Per ton GHG
- Per tree
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Incentive type

Data element name: Incentive type 1-4

Reporting question: What type of incentives were provided to each producer?

Description: List the top 4 types of incentive payments to producers (based on dollar value). The worksheet provides four columns with a drop-down list of the allowed values. Choose one value for each column. If there are fewer than 4 incentive types, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other incentive types as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Cash payment
- Equipment loan
- Guaranteed commodity premium payment
- Inputs and supplies
- Land rental
- Loan
- Paid labor
- Post-harvest transportation
- Tuition or fees for training
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on enrollment

Data element name: Payment on enrollment

Reporting question: What portion of the financial incentive is provided to the producer upon enrollment in the project?

Description: Any incentive payment provided to the producer upon enrollment/signing a contract, and not related to any implementation, MMRV or sales activities. Full payment means the full incentive amount for any contract held by the producer is paid upon enrollment. Partial payment means that only part of the full incentive amount for any contract held by the producer is paid upon enrollment. No payment means that none of the full incentive amount for any contract held by the producer is paid upon enrollment.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on implementation

Data element name: Payment on implementation

Reporting question: What portion of the financial incentive is provided to the producer upon implementation of the practices?

Description: Any incentive payment provided to the producer upon implementing the practices included in the contract. Full payment means the full incentive amount for any contract held by the producer is paid upon implementation. Partial payment means that only part of the full incentive amount for any contract held by the producer is paid upon implementation. No payment means that none of the full incentive amount for any contract held by the producer is paid upon implementation.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on harvest

Data element name: Payment on harvest

Reporting question: What portion of the financial incentive is provided to the producer upon harvest of the commodity?

Description: Any incentive payment provided to the producer upon harvesting or slaughtering the commodity included in the contract. Full payment means the full incentive amount for any contract held by the producer is paid upon harvest. Partial payment means that only part of the full incentive amount for any contract held by the producer is paid upon harvest. No payment means that none of the full incentive amount for any contract held by the producer is paid upon harvest.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on MMRV

Data element name: Payment on MMRV

Reporting question: What portion of the financial incentive is provided to the producer upon completing MMRV requirements?

Description: Any incentive payment provided to the producer upon completing the annual MMRV requirements included in the contract. Full payment means the full incentive amount for any contract held by the producer is paid upon MMRV being complete. Partial payment means that only part of the full incentive amount for any contract held by the producer is paid upon MMRV being complete. No payment means that none of the full incentive amount for any contract held by the producer is paid upon MMRV being complete.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on sale

Data element name: Payment on sale

Reporting question: What portion of the financial incentive is provided to producer upon sale of the commodity?

Description: Any incentive payment provided to the producer upon sale of the commodity included in the contract. Full payment means the full incentive amount for any contract held by the producer is paid upon sale. Partial payment means that only part of the full incentive amount for any contract held by the producer is paid upon sale. No payment means that none of the full incentive amount for any contract held by the producer is paid upon sale.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Field Summary

Unique IDs

Farm ID	Unique Farm ID assigned by FSA
Tract ID	Unique Tract ID assigned by FSA
Field ID	Unique Field ID assigned by FSA
State or territory of field	State name (must match FSA farm enrollment data)
County of field	County name (must match FSA farm enrollment data)

Commodity type

Data element name: Commodity type

Reporting question: What type of commodity is produced from this field?

Description: Type of commodity produced in field enrolled in the project. See full list in Appendix B. The worksheet provides multiple columns with a drop-down list of the allowed values. Choose one value for each column. Leave unnecessary columns blank.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: FSA commodity list

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Practice type

Data element name: Field practice type 1-7

Reporting question: What CSAF practice is being implemented in this field through the project?

Description: Which climate-smart agriculture or forestry (CSAF) practice or practices are being implemented in this project? CSAF practices are included in a list in Appendix A. The worksheet provides seven columns for this data element. Enter one value for each column. If there are fewer than 7 practices being implemented on this field through enrollment in the project, leave unnecessary columns blank.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: See list in Appendix A

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Date practice complete

Data element name: Date practice complete

Reporting question: When did the project certify CSAF practice implementation as complete?

Description: Date that the project certifies that implementation of the CSAF practice is complete on the field. Use January of the year prior to contract year for early adopters, defined as fields that have the practice actively implemented in the year prior to a contract associated with this project is signed). The worksheet provides seven columns for this data element. Enter one value for each column, corresponding to the practice types entered in the previous columns. If there are fewer than 7 practices being implemented on this field through enrollment in the project, leave unnecessary columns blank.

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

Allowed values: 01/01/2023 – 12/31/2030

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Contract end date

Data element name: Contract end date

Reporting question: Contract end date

Description: End date listed on the contract that enrolls the field in the project. If contract end date changes, submit updated end date during the next quarter's reporting.

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

Allowed values: 01/01/2023 – 12/31/2030

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

MMRV assistance provided

Data element name: MMRV assistance provided

Reporting question: Was MMRV assistance provided?

Description: Was any MMRV assistance provided to the primary operator for this field? MMRV assistance includes in-field support for the use of technologies, consultation on data collection and input, and other support related to MMRV. MMRV is defined a measurement (calculations or estimations of GHG emissions), monitoring (ongoing review and confirmation that the climate-smart practice has been implemented according to the agreed upon standard and documentation of any changes in the site, implementation, or GHG emissions impacts over time), reporting (documenting and sharing monitoring and measurement results with project partners, the recipient, and any third-party verification organization), and verification (independent confirmation that measurement, monitoring and reporting information are complete, accurate and reliable).

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Marketing assistance provided

Data element name: Marketing assistance provided

Reporting question: Was marketing assistance provided?

Description: Was any marketing assistance provided to the primary operator for the commodity(ies) produced from this field? Marketing assistance includes guaranteeing the sale of the commodity(ies), providing a platform for the sale of the commodity(ies), providing a label, branding, or other support related to marketing.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Incentive per acre or head

Data element name: Incentive per acre or head

Reporting question: Is this field receiving a per-acre or per-head incentive?

Description: Is this field receiving an incentive payment to implement a specific CSAF practice or set of practices on a per-acre or per-head (livestock) basis?

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field commodity value

Data element name: Field commodity value

Reporting question: What is the value of the commodity produced on the enrolled field?

Description: The dollar value of the commodity produced on the enrolled field.

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

Allowed values: $1-$10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field commodity volume

Data element name: Field commodity volume

Reporting question: What is the volume of commodity produced on the enrolled field?

Description: The volume of the commodity produced on the enrolled field

Data type: Decimal

Select multiple values: No

Measurement unit: Number

Allowed values: 1-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field commodity volume unit

Data element name: Field commodity volume unit

Reporting question: What is the unit of volume?

Description: The unit associated with the volume of the commodity produced on the enrolled field. If "other" is chosen, enter the appropriate value in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Bushels
- Carcass weight pounds
- Gallons
- Head
- Linear feet
- Liveweight pounds
- Pounds
- Tons
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Cost of implementation

Data element name: Cost of implementation

Reporting question: What is the cost of practice implementation in the field?

Description: Total annual estimated cost per unit of implementing the practice(s) in the enrolled field.

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

Allowed values: $1-$10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Cost unit

Data element name: Cost unit

Reporting question: What is the unit for cost?

Description: The unit associated with the cost of implementing CSAF practices in the field. If "other" is chosen, enter the appropriate value in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Per acre
- Per bushel
- Per head
- Per linear foot
- Per pound
- Per ton
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Cost coverage

Data element name: Cost coverage

Reporting question: What percent of the practice cost is covered by the incentive?

Description: Estimated proportion of total annual cost of implementing the practice(s) that is covered by project incentives.

Data type: Integer

Select multiple values: No

Measurement unit: Percent

Allowed values: 0-100

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG monitoring

Data element name: Field GHG monitoring 1-3

Reporting question: How were GHG impacts monitored in this field?

Description: Up to the top three forms of monitoring GHG benefits as part of MMRV requirements. Monitoring is defined as ongoing review and confirmation that the climate-smart practice has been implemented according to the agreed upon standard and documentation of any changes in the site, implementation, or GHG emissions impacts over time. Include up to 3 methods, based on which methods are most commonly used for this field. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 GHG monitoring methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other GHG monitoring methods as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Drones
- Ground-level photos and videos
- On-farm inspection
- Plot-based sampling (e.g., soil, water)
- Producer records or attestation
- Satellite monitoring or remote sensing
- Soil metagenomics
- Soil sensors
- Water sensors
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG reporting

Data element name: Field GHG reporting 1-3

Reporting question: How were GHG benefits reported for this field?

Description: Up to the top three forms of reporting on GHG benefits as part of MMRV requirements. Reporting is defined as documenting and sharing monitoring and measurement results with project partners, the recipient, and any third-party verification organization. Include up to 3 methods, based on which methods are most commonly used for this field. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 GHG reporting methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other GHG reporting methods as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Automated devices
- Email
- Mobile app
- Paper
- Third-party actors
- Website
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG verification

Data element name: Field GHG verification 1-3

Reporting question: How was implementation of practices to reduce GHG emissions verified for this field?

Description: Up to the top three of verification of GHG benefits as part of MMRV requirements. Verification is defined as independent confirmation that measurement, monitoring and reporting information are complete, accurate and reliable. Include up to 3 methods, based on which methods are most commonly used for this field. The worksheet provides three columns with a drop-down list of the allowed values. Choose one value for each column. If fewer than 3 GHG verification methods are used, leave unnecessary columns blank. If "other" is chosen, use the additional column to enter other GHG verification methods as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Artificial intelligence
- Computer modeling
- Recipient audit
- Photos
- Record audit
- Satellite imagery
- Site or field visit
- Third-party audit
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG calculations

Data element name: Field GHG calculations

Reporting question: What methods are used to calculate GHG benefits in this field?

Description: List the method(s) used to calculate GHG benefits in this field. If yes to direct physical measurements, submit result reports (see *Supplemental Data Submission – Field direct GHG measurement results*).

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Models
- Direct field measurements
- Both

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official GHG calculation

Data element name: Field official GHG calculation

Reporting question: What method was used to calculate the official GHG benefits in this field?

Description: List the method used to calculate the official GHG benefits in this field that are reported as part of the project's aggregate impact.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Models
- Direct field measurements

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official GHG ER

Data element name: Field official GHG emission reductions

Reporting question: What are the estimated total GHG emission reductions (CO2eq) in this field?

Description: Estimated greenhouse gas emission reductions from practice implementation in this field that are reported as part of the project's aggregate impact. This data element must be entered upon practice completion or annually, as appropriate.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official carbon stock

Data element name: Field official carbon stock

Reporting question: How much carbon has been sequestered in this field?

Description: Estimated total change in carbon stock based on practice implementation in this field. This data element can be reported in any quarter and is cumulative for the year. Conversion rate is one ton of carbon = 3.67 tons of CO_2eq.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official CO2 ER

Data element name: Field official CO2 emission reductions

Reporting question: What are the estimated total CO2 emission reductions in this field?

Description: Estimated total carbon dioxide emission reductions based on practice implementation in this field that are reported as part of the project's aggregate impact. This data element must be entered upon practice completion or annually, as appropriate.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official CH4 ER

Data element name: Field official CH4 emission reductions

Reporting question: What are the estimated total CH4 emission reductions in this field?

Description: Estimated total methane emission reductions based on practice implementation in this field that are reported as part of the project's aggregate impact. This data element must be entered upon practice completion or annually, as appropriate. Conversion rate is one ton of CH_4 = 25 tons of CO_2eq.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CH4 reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official N20 ER

Data element name: Field official N2O emission reductions

Reporting question: What are the estimated total N2O emission reductions in this field?

Description: Estimated total nitrous oxide emission reductions based on practice implementation in this field that are reported as part of the project's aggregate impact. This data element must be entered upon practice completion or annually, as appropriate. Conversion rate is one ton of N_2O = 298 tons of CO_2eq.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons N2O reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field offsets produced

Data element name: Field offsets produced

Reporting question: How many carbon offsets have been produced in this field?

Description: Total carbon offsets produced in the field during the quarter (not cumulative). Offsets are defined as having been verified and certified using an accepted standard and sold into the carbon marketplace.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field insets produced

Data element name: Field insets produced	**Reporting question:** How many carbon insets have been produced in this field?
Description: Total carbon insets produced in the field during the quarter (not cumulative). Insets are defined as having been verified and certified using an accepted standard and accounted for within Scope 3 emissions for a firm.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons CO_2eq	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Quarterly

Other field measurement

Data element name: Other field measurement	**Reporting question:** Were data collected from the field for reasons other than GHG benefit estimation?
Description: Direct physical measurements or data collection taken in the field for any reason other than GHG benefits estimation. These reasons could include calibration of GHG estimation tools or models, tracking other environmental benefits (see Field environmental benefits report), and other reasons. If yes, submit corresponding reports (see *Supplemental data submission - Field direct measurement results*).	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Yes • No • I don't know
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Quarterly

GHG Benefits - Alternate Modeled

Unique IDs	
Farm ID	Unique Farm ID assigned by FSA
Tract ID	Unique Tract ID assigned by FSA
Field ID	Unique Field ID assigned by FSA
State or territory of field	State name (must match FSA farm enrollment data)
County of field	County name (must match FSA farm enrollment data)

Commodity type

Data element name: Commodity type 1-6 **Reporting question:** What type of commodity(ies) is produced from this field?

Description: Type of commodity(ies) produced in field enrolled in the project. See full list of commodity options in Appendix B. The worksheet provides multiple columns with drop-down lists of the allowed values. Choose one value for each column. Leave unnecessary columns blank

Data type: List **Select multiple values**: No

Measurement unit: Category **Allowed values:** FSA commodity list

Logic: None – all respond **Required:** If project calculates GHG benefits using multiple methods

Data collection level: Field **Data collection frequency:** Annual

Practice type

Data element name: Practice type 1-7 **Reporting question:** What CSAF practice is being implemented by this project?

Description: Which CSAF practice or practices are being implemented in this project? CSAF practices are included in a list in Appendix A. The worksheet provides seven columns for this data element. Enter one value for each column. If there are fewer than 7 practices being implemented by the project, leave unnecessary columns blank.

Data type: List **Select multiple values:** No

Measurement unit: Category **Allowed values:** See list in Appendix A

Logic: None – all respond **Required:** If project calculates GHG benefits using multiple methods

Data collection level: Field **Data collection frequency:** Annual

GHG model

Data element name: GHG model

Reporting question: What model was used for alternate calculation of GHG benefits?

Description: Select the model used for the alternate calculation of the field's GHG benefits.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- ACC Calculator
- Agriculture, Forestry and Other Land Use (AFOLU) Carbon Calculator
- AIRES
- APEX
- Bowen Ratio Energy Balance
- Carat-Calculator
- CArPE
- CDFA web-based calculator
- COMET-Farm
- COMET-Planner
- CoolFarm
- Cover Crop Explore
- CropTrak
- CultivateAI's FMIS
- DayCent-CR
- DNDC
- DSSAT
- Earth Optics
- EcoPractices
- EPIC
- Extrapolation based on literature
- FieldPrint
- Granular
- GREET
- gTIR
- IFSM
- IPCC default emissions factors & models
- itree
- Nitrogen Balance
- Nutrient Tracking Tool (NTT)
- RCD Project Tracker
- Revised Universal Soil Loss equation 2 (RUSLE2)
- RuFaS
- SAFE-Link
- SALUS (CIBO)
- SNAPGRAZE
- SquareRoots
- SWAT-C
- SYMFONI
- Truterra Sustainability Tool
- Verra
- WEPP
- YardStick
- Other (specify)

Logic: None – all respond

Required: If project calculates GHG benefits using multiple methods

Data collection level: Field

Data collection frequency: Annual

Model start date

Data element name: Model start date	**Reporting question:** For what time period are the GHG benefits modeled (model start date)?
Description: Date that the model parameters begin.	
Data type: Date	**Select multiple values**: NA
Measurement unit: MM/DD/YYYY	**Allowed values:** 01/01/1950 – 12/31/2030
Logic: None – all respond	**Required:** If project calculates GHG benefits using multiple methods
Data collection level: Field	**Data collection frequency:** Annual

Model end date

Data element name: Model end date	**Reporting question:** For what time period are the GHG benefits modeled (model end date)?
Description: Date that the model parameters end.	
Data type: Date	**Select multiple values**: NA
Measurement unit: MM/DD/YYYY	**Allowed values:** 01/01/2023– 12/31/2030
Logic: None – all respond	**Required:** If project calculates GHG benefits using multiple methods
Data collection level: Field	**Data collection frequency:** Annual

Total GHG benefits estimated

Data element name: Total GHG benefits estimated	**Reporting question:** What is the alternate estimate of the field's total GHG emission reductions?
Description: Total greenhouse gas emission reductions from practice implementation in the field estimated using an alternate model.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons CO_2eq	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** If project calculates GHG benefits using multiple methods
Data collection level: Field	**Data collection frequency:** Annual

Total carbon stock estimated

Data element name: Total carbon stock estimated	**Reporting question:** What is the alternate estimate of how much carbon has the field has sequestered?
Description: Total change in carbon stock based on practice implementation in the field estimated using an alternate model. Conversion rate is one ton of carbon = 3.67 tons of CO_2eq.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons CO_2eq	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** If project calculates GHG benefits using multiple methods
Data collection level: Field	**Data collection frequency:** Annual

Total CO2 estimated

Data element name: Total CO2 estimated	**Reporting question:** What is the alternate estimate of the field's total CO2 emission reductions?
Description: Total carbon dioxide emission reductions based on practice implementation in the field estimated using an alternate model.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons CO_2	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** If project calculates GHG benefits using multiple methods
Data collection level: Field	**Data collection frequency:** Annual

Total CH4 estimated

Data element name: Total CH4 estimated	**Reporting question:** What is the alternate estimate of the field's total CH4 emission reductions?
Description: Total methane emission reductions based on practice implementation in the field estimated using an alternate model. Conversion rate is one ton of CH_4 = 25 tons of CO_2eq.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons CH4 reduced in CO_2eq	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** If project calculates GHG benefits using multiple methods
Data collection level: Field	**Data collection frequency:** Annual

Total field N20 estimated

Data element name: Total N2O estimated	**Reporting question:** What is the alternate estimate of the field's total N2O emission reductions?
Description: Total nitrous oxide emission reductions based on practice implementation in the field estimated using an alternate method. Conversion rate is one ton of N_2O = 298 tons of CO_2eq.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons N2O reduced in CO_2eq	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** If project calculates GHG benefits using multiple methods
Data collection level: Field	**Data collection frequency:** Annual

GHG Benefits - Measured

Unique IDs	
Farm ID	Unique Farm ID assigned by FSA
Tract ID	Unique Tract ID assigned by FSA
Field ID	Unique Field ID assigned by FSA
State or territory of field	State name (must match FSA farm enrollment data)
County of field	County name (must match FSA farm enrollment data)

GHG measurement method

Data element name: GHG measurement method

Reporting question: What measurement method is used to calculate GHG benefits?

Description: Field-based measurement method used to calculate GHG benefits. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Emissions measurement unit
- Flux towers
- Litterbags
- Plant measurements
- Portable emissions analyzers
- Soil flux chambers
- Soil samples
- Soil sensors
- Vehicle-mounted sensors
- Other (specify)

Logic: None – all respond

Required: If a project conducts soil samples or takes carbon stock or greenhouse gas emission measurements in this field

Data collection level: Field

Data collection frequency: Annual

Lab name

Data element name: Lab name

Reporting question: What is the name of the lab that processed the measurement samples?

Description: Name of entity that received data and conducted analysis of samples.

Data type: Text

Select multiple values: No

Measurement unit: NA

Allowed values: Free text

Logic: None – all respond

Required: If applicable

Data collection level: Field

Data collection frequency: Annual

Measurement start date

Data element name: Measurement start date

Reporting question: On what date did the measurement start?

Description: Date that the measurements began. If it was a single point in time, use the same date for start date and end date. If multiple measurements took place over a time period, use the date that the measurements first began.

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

Allowed values: 01/01/2023 – 12/31/2030

Logic: None – all respond

Required: If a project conducts soil samples or takes carbon stock or greenhouse gas emission measurements in this field

Data collection level: Field

Data collection frequency: Annual

Measurement end date

Data element name: Measurement end date

Reporting question: On what date did the measurement end?

Description: Date that the measurements began. If it was a single point in time, use the same date for start date and end date. If multiple measurements took place over a time period, use the date that the measurements were completed.

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

Allowed values: 01/01/2023– 12/31/2030

Logic: None – all respond

Required: If a project conducts soil samples or takes carbon stock or greenhouse gas emission measurements in this field

Data collection level: Field

Data collection frequency: Annual

Total CO2 reduction calculated

Data element name: Total CO2 reduction calculated

Reporting question: What are the total measured CO2 emission reductions?

Description: Total annual CO2 emission reductions based on practice implementation in the field calculated from in-field measurements.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2

Allowed values: 0-10,000,000

Logic: None – all respond

Required: If a project takes carbon stock or greenhouse gas emission measurements in this field

Data collection level: Field

Data collection frequency: Annual

Total field carbon stock measured

Data element name: Total field carbon stock measured

Reporting question: What is the total amount of carbon sequestered based on repeat measurements in this field?

Description: Change in carbon stock based on practice implementation in the field calculated from repeat soil sampling in this field. (Results for initial field soil samples should be reported in the 'Soil sample result' and 'Measurement type" columns.) Conversion rate is one ton of carbon = 3.67 tons of CO_2eq.

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: If a project conducts soil samples or takes carbon stock measurements in this field

Data collection level: Field

Data collection frequency: Annual

Total CH4 reduction calculated	
Data element name: Total CH4 reduction calculated	**Reporting question:** What are the total measured CH4 emission reductions?
Description: Total annual methane emission reductions based on practice implementation in the field calculated from in-field measurements. Conversion rate is one ton of CH_4 = 25 tons of CO_2eq.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons CH4 reduced in CO_2eq	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** If a project conducts soil samples or takes carbon stock or greenhouse gas emission measurements in this field
Data collection level: Field	**Data collection frequency:** Annual

Total N20 reduction calculated	
Data element name: Total N2O reduction calculated	**Reporting question:** What are the total measured N2O emission reductions?
Description: Total annual nitrous oxide emission reductions based on practice implementation in the field calculated from in-field measurements. Conversion rate is one ton of N_2O = 298 tons of CO_2eq.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons N2O reduced in CO_2eq	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** If a project conducts soil samples or takes carbon stock or greenhouse gas emission measurements in this field
Data collection level: Field	**Data collection frequency:** Annual

Soil sample result	
Data element name: Soil sample result	**Reporting question:** What is the numeric result from this soil sample?
Description: Results of measurement(s) taken to determine the carbon stock of a soil (the tons of carbon found in a specified volume of soil).	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Amount	**Allowed values:** .00001-100,000
Logic: None – all respond	**Required:** If a project conducts soil samples in this field
Data collection level: Field	**Data collection frequency:** Annual

Soil sample result unit

Data element name: Soil sample result unit

Reporting question: What is unit for the soil sample result?

Description: Unit for the corresponding soil sample result. The worksheet provides a drop-down list of choices for this data element. If "other" is chosen, use the additional column to enter the appropriate yield unit as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Percent
- Ppm
- Grams
- Grams per cubic centimeter
- Other (specify)

Logic: None – all respond

Required: If a project conducts soil samples in this field

Data collection level: Field

Data collection frequency: Annual

Measurement type

Data element name: Measurement type

Reporting question: What type of analysis was conducted for this soil sample?

Description: Type of soil analysis conducted. The worksheet provides a drop-down list of choices for this data element. If "other" is chosen, use the additional column to enter the appropriate yield unit as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Organic matter
- Total organic carbon
- Bulk density
- Other (specify)

Logic: None – all respond

Required: If a project conducts soil samples in this field

Data collection level: Field

Data collection frequency: Annual

Additional Environmental Benefits

Unique IDs	
Farm ID	Unique Farm ID assigned by FSA
Tract ID	Unique Tract ID assigned by FSA
Field ID	Unique Field ID assigned by FSA
State or territory of field	State name (must match FSA farm enrollment data)
County of field	County name (must match FSA farm enrollment data)

Environmental benefits

Data element name: Environmental benefits

Reporting question: Are environmental benefits other than GHGs being tracked in the field?

Description: Tracking of environmental benefits other than greenhouse gas emission reductions and carbon sequestration in the enrolled field. Tracking means at a minimum using some form of monitoring and reporting that can quantify benefits.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss

Data element name: Reduction in nitrogen loss

Reporting question: Are reductions in nitrogen losses being tracked in the field?

Description: Tracking reductions in nitrogen losses in the enrolled field. Tracking means at a minimum using some form of monitoring and reporting that can quantify benefits.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss amount

Data element name: Reduction in nitrogen loss amount

Reporting question: How much reduction in nitrogen losses have been measured in the field?

Description: Total amount of reduction in nitrogen losses that is measured and reported in the enrolled field.

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Reduction in nitrogen loss'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss amount unit

Data element name: Reduction in nitrogen loss amount unit

Reporting question: What is the unit for how much reduction in nitrogen losses have been measured in the field?

Description: Unit for the total amount of reduction in nitrogen losses that is measured and reported in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Kilograms
- Metric tons
- Pounds
- Other (specify)

Logic: Respond if yes to 'Reduction in nitrogen loss'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss purpose

Data element name: Reduction in nitrogen loss purpose

Reporting question: What is the purpose of tracking reduction in nitrogen losses?

Description: Purpose of tracking reduction in nitrogen losses in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Commodity marketing
- Producing insets
- Producing offsets
- I don't know
- Other (specify)

Logic: Respond if yes to 'Reduction in nitrogen loss'

Required: Yes

Data collection level: Project

Data collection frequency: Annual

Reduction in phosphorus loss

Data element name: Reduction in phosphorus loss

Reporting question: Are reductions in phosphorus losses being tracked in the field?

Description: Tracking of reductions in phosphorus losses in the enrolled field. Tracking means at a minimum using some form of monitoring and reporting that can quantify benefits.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in phosphorus loss amount

Data element name: Reduction in phosphorus loss amount

Reporting question: How much reduction in phosphorus losses have been measured in the field?

Description: Total amount of reduction in phosphorus losses that is measured in the field.

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Reduction in phosphorus loss'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in phosphorus loss amount unit

Data element name: Reduction in phosphorus loss amount unit	**Reporting question:** What is the unit for the reduction in phosphorus losses measured in the field?
Description: Unit for the total amount of reduction in phosphorus losses that is measured in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Kilograms • Metric tons • Pounds • Other (specify)
Logic: Respond if yes to 'Reduction in phosphorus loss'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Reduction in phosphorus loss purpose

Data element name: Reduction in phosphorus loss purpose	**Reporting question:** What is the purpose of tracking reductions in phosphorus losses?
Description: Purpose of tracking reduction in phosphorus losses in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Commodity marketing • Producing insets • Producing offsets • I don't know • Other (specify)
Logic: Respond if yes to 'Reduction in phosphorus loss'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Other water quality

Data element name: Other water quality	**Reporting question:** Are other water quality metrics being tracked in the field?
Description: Project tracking of other water quality metrics in the enrolled field. Tracking means at a minimum using some form of monitoring and reporting that can quantify benefits.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Yes • No • I don't know
Logic: Respond if yes to 'Environmental benefits'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Other water quality type

Data element name: Other water quality type	**Reporting question:** What type of other water quality metric have been measured in the field?
Description: Type of other water quality metric (besides nitrogen loss and phosphorus loss reductions) that is measured in the field. If "other" is chosen, enter the appropriate value as free text in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Sediment load reduction • Temperature • Other (specify)
Logic: Respond if yes to 'Other water quality'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Other water quality amount

Data element name: Other water quality amount	**Reporting question:** How much reduction in other water quality metrics have been measured in the field?
Description: Total amount of reduction in other water quality metrics that is measured in the enrolled field.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Amount	**Allowed values:** 0-1,000,000
Logic: Respond if yes to 'Other water quality'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Other water quality amount unit

Data element name: Other water quality amount unit	**Reporting question:** What is the unit for the reduction in other water quality metrics measured in the field?
Description: Unit for the total amount of reduction in other water quality metrics that is measured in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Degrees F • Kilograms • Kilograms per liter • Metric tons • Pounds • Other (specify)
Logic: Respond if yes to 'Other water quality'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Other water quality purpose

Data element name: Other water quality purpose	**Reporting question:** What is the purpose of tracking other water quality benefits?
Description: Purpose of tracking other water quality benefits in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Commodity marketing • Producing insets • Producing offsets • I don't know • Other (specify)
Logic: Respond if yes to 'Other water quality'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Water quantity

Data element name: Water quantity	**Reporting question:** Is water conservation being tracked in the field?
Description: Tracking of water conservation or reduction in use in the enrolled field. Tracking means at a minimum using some form of monitoring and reporting that can quantify benefits.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Yes • No • I don't know
Logic: Respond if yes to 'Environmental benefits'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Water quantity amount

Data element name: Water quantity amount	**Reporting question:** How much water conservation has been measured in the field?
Description: Total amount of water conservation or reduction that is measured in the field.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Amount	**Allowed values:** 0-1,000,000
Logic: Respond if yes to 'Water quantity'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Water quantity amount unit

Data element name: Water quantity amount unit	**Reporting question:** What is the unit for the amount of water conservation measured in the field?
Description: Unit for the total amount of water conservation or reduced use that is measured and reported in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Acre-feet • Cubic feet • Other (specify)
Logic: Respond if yes to 'Water quantity'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Water quantity purpose

Data element name: Water quantity purpose	**Reporting question:** What is the purpose of tracking water conservation?
Description: Purpose of tracking water conservation or reductions in water use in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Commodity marketing • Producing insets • Producing offsets • I don't know • Other (specify)
Logic: Respond if yes to 'Water quantity'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Reduced erosion

Data element name: Reduced erosion	**Reporting question:** Is reduced soil erosion being tracked in the field?
Description: Tracking of reduced soil erosion in the enrolled field. Tracking means at a minimum using some form of monitoring and reporting that can quantify benefits.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Yes • No • I don't know
Logic: Respond if yes to 'Environmental benefits'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Reduced erosion amount

Data element name: Reduced erosion amount	**Reporting question:** How much erosion reduction has been measured in the field?
Description: Total amount of erosion reduction that is measured in the enrolled field.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Amount	**Allowed values:** 0-1,000,000
Logic: Respond if yes to 'Reduced erosion'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Reduced erosion amount unit

Data element name: Reduced erosion unit	**Reporting question:** What is the unit for the amount of erosion reduction measured?
Description: Unit for the total amount of erosion reduction from enrolled fields that is measured and reported by the project. If "other" is chosen, enter the appropriate value as free text in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Tons • Other (specify)
Logic: Respond if yes to 'Reduced erosion'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

Reduced erosion purpose

Data element name: Reduced erosion purpose

Reporting question: What is the purpose of tracking reduced erosion in the field?

Description: Purpose of tracking reduced erosion the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Commodity marketing
- Producing insets
- Producing offsets
- I don't know
- Other (specify)

Logic: Respond if yes to 'Reduced erosion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduced energy use

Data element name: Reduced energy use

Reporting question: Is reduced energy use being tracked in the field?

Description: Tracking of reduced energy use in the enrolled field. Tracking means at a minimum using some form of monitoring and reporting that can quantify benefits.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduced energy use amount

Data element name: Reduced energy use amount

Reporting question: How much energy use reduction has been measured in the field?

Description: Total amount of energy use reduction that is measured in the enrolled field.

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Reduced energy use'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduced energy use amount unit

Data element name: Reduced energy use unit

Reporting question: What is the unit for the energy use reduction measured in the field?

Description: Unit for the total amount of energy use reduction that is measured in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Kilowatt hours
- Other (specify)

Logic: Respond if yes to 'Reduced energy use'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduced energy use purpose

Data element name: Reduced energy use purpose

Reporting question: What is the purpose of tracking reduced energy use in the field?

Description: Purpose of tracking reduced energy use in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Commodity marketing
- Producing insets
- Producing offsets
- I don't know
- Other (specify)

Logic: Respond if yes to 'Reduced energy use'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion

Data element name: Avoided land conversion

Reporting question: Is avoided land conversion being tracked in the field?

Description: Tracking of avoided land conversion in the enrolled field. Tracking means at a minimum using some form of monitoring and reporting that can quantify benefits. Land conservation means land use changing from agricultural uses to non-agricultural uses.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion amount

Data element name: Avoided land conversion amount

Reporting question: How much avoided land conversion has been measured in the field?

Description: Total amount of avoided land conversion that is measured in the enrolled field.

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Avoided land conversion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion amount unit

Data element name: Avoided land conversion unit

Reporting question: What is the unit for the amount of avoided land conversion measured in the field?

Description: Unit for the total amount of avoided land conversion that is measured in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Acres
- Other (specify)

Logic: Respond if yes to 'Avoided land conversion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion purpose

Data element name: Avoided land conversion purpose

Reporting question: What is the purpose of tracking avoided land conversion in the field?

Description: Purpose of tracking avoided land conversion in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Commodity marketing
- Producing insets
- Producing offsets
- I don't know
- Other (specify)

Logic: Respond if yes to 'Avoided land conversion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat

Data element name: Improved wildlife habitat

Reporting question: Are improvements to wildlife habitat being tracked in the field?

Description: Tracking of improvements to wildlife in and around the enrolled field. Tracking means at a minimum using some form of monitoring and reporting that can quantify benefits.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat amount

Data element name: Improved wildlife habitat amount

Reporting question: How much improved wildlife habitat has been measured in the field?

Description: Total amount of improved wildlife habitat that is measured in and around the enrolled fields.

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Improved wildlife habitat'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat amount unit

Data element name: Improved wildlife habitat unit

Reporting question: What is the unit for the amount of improved wildlife habitat measured in the field?

Description: Unit for the total amount of improved wildlife habitat that is measured in and around enrolled fields. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Acres
- Linear feet
- Other (specify)

Logic: Respond if yes to 'Improved wildlife habitat'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat purpose	
Data element name: Improved wildlife habitat purpose	**Reporting question:** What is the purpose of tracking improved wildlife habitat in the field?
Description: Purpose of tracking improved wildlife habitat in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Commodity marketing • Producing insets • Producing offsets • I don't know • Other (specify)
Logic: Respond if yes to 'Improved wildlife habitat'	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Annual

CSAF Practice Sub-questions

For some CSAF practices, there is an additional set of questions that are unique to each practice. Responses to these questions are needed to verify estimated GHG benefits of these practices. If a field is implementing a CSAF practice with an NRCS CPS code in Table 11, answer the follow-up questions listed next to the relevant practice name in the table. Use the *Supplemental Reporting Workbook – CSAF Practice Sub-questions* to report the required information.

Table 11. Follow-on questions for select CSAF practices

Practice name and code	Follow-up question	Options (select one)
Alley Cropping (CPS 311)	Species category (select most common/extensive type if using more than one)	Coniferous trees Deciduous trees Shrubs
	Species density (number of trees planted per acre)	1-10,000
Anaerobic Digester (CPS 366)	Waste storage system prior to installing anaerobic digester	Aerobic lagoon Anaerobic digester (complex mix) with energy generation Anaerobic digester (plug flow) with energy generation Anaerobic lagoon Composting Covered lagoon (no energy generation or flaring) Covered lagoon with energy generation Covered lagoon with flaring Daily spread Deep bedding pack Deep pit Dry lot Dry stacking/solid storage Pasture/range/paddock Poultry with bedding Poultry without bedding (e.g., high rise) Slurry tank/basin
	Digester type	Covered lagoon with energy generation Covered lagoon with flaring Covered lagoon (no energy generation or flaring) Complex mix with energy generation Plug flow with energy generation Other (specify)
	Additional feedstock source (select most common if using more than one)	Food waste Straw or bedding Wastewater Other (specify)

Combustion System Improvement (CPS 372)	Fuel type before installation	Coal Diesel Electricity Gasoline Kerosene Liquified petroleum gas (LPG) Natural gas Propane Wood Other (specify)
	Fuel amount before installation	0-1,000,000
	Fuel amount unit before installation	Cubic feet (natural gas) Gallons (diesel, gasoline, propane, LPG, kerosene) Kilowatt-hours (electricity) Pounds (wood, coal) Other (specify)
	Fuel type after installation	Coal Diesel Electricity Gasoline Kerosene Liquified petroleum gas (LPG) Natural gas Propane Wood Other (specify)
	Fuel amount after installation	0-1,000,000
	Fuel amount unit after installation	Cubic feet (natural gas) Gallons (diesel, gasoline, propane, LPG, kerosene) Kilowatt-hours (electricity) Pounds (wood, coal) Other (specify)
Conservation Cover (CPS 327)	Species category (select most common/extensive type if using more than one)	Brassicas Grasses Legumes Non-legume broadleaves Shrubs

Conservation Crop Rotation (CPS 328)	Conservation crop type	Brassica Broadleaf Cool season Grass Legume Warm season
	Change implemented	Added perennial crop Reduced fallow period Both
	Conservation crop rotation tillage type	Conventional (plow, chisel, disk) No-till, direct seed Reduced till Strip till None Other (specify)
	Total conservation crop rotation length in days	1-120
Contour Buffer Strips (CPS 332)	Strip width (feet)	1-100
	Species category	Grasses Forbs Mix
Cover Crop (CPS 340)	Species category (select most common/extensive type if using more than one)	Brassicas Forbs Grasses Legume Non-legume broadleaves
	Cover crop planned management	Grazing Haying Termination
	Cover crop termination method	Burning Herbicide application Incorporation Mowing Rolling/crimping Winter kill/frost
Critical Area Planting (CPS 342)	Species category (select most common/extensive type if using more than one)	Grass Grass legume/forb mix Herbaceous woody mix Perennial or reseeding Shrubs Trees
Feed Management (CPS 592)	Crude protein (percent)	0-100
	Fat (percent)	0-100
	Feed additives/supplements	Chemical Edible oils/fats Seaweed/kelp Other (specify)
Field Border (CPS 386)	Species category (select most common/extensive type if using more than one)	Forbs Grasses Mix Shrubs

Filter Strip (CPS 393)	Strip width (feet)	20-1,000
	Species category (select most common/extensive type if using more than one)	Forbs Grasses Mix Shrubs
Forest Farming (CPS 379)	Land use in previous year	Forest Multi-story cropping Pasture/grazing land Row crops Other agroforestry
Forest Stand Improvement (CPS 666)	Purpose for implementation	Maintain or improve forest carbon stocks Maintain or improve forest health and productivity Maintain or improve forest structure and composition Maintain or improve wildlife, fish, and pollinator habitat Manage natural precipitation more efficiently Reduce forest pest pressure Reduce forest wildfire hazard
Grassed Waterway (CPS 412)	Species category (select most common/extensive type if using more than one)	Flowering Plants Forbs Grasses
Hedgerow Planting (CPS 422)	Species category (select most common/extensive type if using more than one)	Grasses Shrubs Trees
	Species density (number of trees planted per acre)	1-10,000
Herbaceous Wind Barriers (CPS 603)	Species category (select most common/extensive type if using more than one)	Forbs Grasses Mix Shrubs
	Barrier width (feet)	1-1,000
	Number of rows	1-100
Mulching (CPS 484)	Mulch type	Gravel Natural Synthetic Wood
	Mulch cover (percent of field)	0-100

Nutrient management (CPS 590)	Nutrient type with CPS 590	Biosolids Commercial fertilizers Compost EEF (nitrification inhibitor) EEF (slow or controlled release) EEF (urease inhibitor) Green manure Liquid animal manure Organic by-products Organic residues or materials Solid/semi-solid animal manure Wastewater
	Nutrient application method with CPS 590	Banded Broadcast Injection Irrigation Surface application Surface application with tillage Variable rate
	Nutrient application method in the previous year	Banded Broadcast Injection Irrigation Surface application Surface application with tillage Variable rate
	Nutrient application timing with CPS 590	Single pre-planting Single post planting Split pre- and post-planting Split post-planting
	Nutrient application timing in the previous year	Single pre-planting Single post-planting Split pre- and post-planting Split post-planting
	Nutrient application rate with CPS 590	0-20,000
	Nutrient application rate unit with CPS 590	Gallons per acre Pounds per acre
	Nutrient application rate change	Decrease compared to previous year Increase compared to previous year No change
Pasture and Hay Planting (CPS 512)	Species category (select most common/extensive type if using more than one)	Cool-season broadleaf Cool-season grass Warm-season broadleaf Warm-season grass
	Termination process	Grazing Haying (i.e., cutting and baling) Other (specify)
Prescribed Grazing (CPS 528)	Grazing type	Cell grazing Deferred rotational Management intensive Rest-rotation

Range Planting (CPS 550)	Species category (select most common/extensive type if using more than one)	Forbs Grasses Legumes Shrubs Trees
Residue and Tillage Management – No-till (CPS 329)	Surface disturbance	None Seed row only
Residue and Tillage Management – Reduced Till (CPS 345)	Surface disturbance	None Seed row/ridge tillage for planting Shallow across most of the soil surface Vertical/mulch
Riparian Forest Buffer (CPS 391)	Species category (select most common/extensive type if using more than one)	Coniferous trees Deciduous trees Shrubs
	Species density (number of trees planted per acre)	1-10,000
Riparian Herbaceous Cover (CPS 390)	Species category (select most common/extensive type if using more than one)	Ferns Forbs Grasses Legumes Rushes Sedges
Roofs and Covers (CPS 367)	Roof/cover type	Concrete Flexible geomembrane Metal Timber Other (specify)
Silvopasture (CPS 381)	Species category (select most common/extensive type if using more than one)	Coniferous trees Deciduous trees Forage Shrubs
	Species density (number of trees planted per acre)	1-10,000
Stripcropping (CPS 585)	Strip width (feet)	1-1,000
	Crop category (select most common/extensive type if using more than one)	Erosion resistant crops Fallow Sediment trapping crops
	Number of strips	2-100
Tree/Shrub Establishment (CPS 612)	Species category (select most common/extensive type if using more than one)	Coniferous trees Deciduous trees Shrubs
	Species density (number of trees planted per acre)	1-10,000
Vegetative Barrier (CPS 601)	Species category (select most common/extensive type if using more than one)	Grasses Grass forb mix Grass legume mix
	Barrier width (feet)	3-1,000

Waste Separation Facility (CPS 632)	Separation type	Chemical (e.g., salts, polymers) Mechanical (e.g., screens, presses) Settling basin
	Most common use of solids	Bedding Field applied Other (specify)
Waste Storage Facility (CPS 313)	Waste storage system prior to installing your waste storage facility	Aerobic lagoon Anaerobic digester (complex mix) with energy generation Anaerobic digester (plug flow) with energy generation Anaerobic lagoon Composting Covered lagoon (no energy generation or flaring) Covered lagoon with energy generation Covered lagoon with flaring Daily spread Deep bedding pack Deep pit Dry lot Dry stacking/solid storage Pasture/range/paddock Poultry with bedding Poultry without bedding (e.g., high rise) Slurry tank/basin
Waste Treatment (CPS 629)	Treatment type	Biological Chemical Mechanical
Waste Treatment Lagoon (CPS 359)	Waste storage system prior to installing waste treatment lagoon	Aerobic lagoon Anaerobic digester (complex mix) with energy generation Anaerobic digester (plug flow) with energy generation Anaerobic lagoon Composting Covered lagoon (no energy generation or flaring) Covered lagoon with energy generation Covered lagoon with flaring Daily spread Deep bedding pack Deep pit Dry lot Dry stacking/solid storage Pasture/Range/Paddock Poultry with bedding Poultry without bedding (e.g., high rise) Slurry tank/basin
	Is there a lagoon cover/crust?	Yes No
	Is there lagoon aeration?	Yes No

Windbreak/Shelterbelt Establishment and Renovation (CPS 380)	Species category (select most common/extensive type if using more than one)	Coniferous trees Deciduous trees Shrubs
	Species density (number of trees planted per acre)	1-10,000

Appendix A: Climate-smart Agriculture and Forestry Practices

All NRCS Practice Standards (not limited to climate-smart practices)

309, Agrichemical Handling Facility
311, Alley Cropping
313, Waste Storage Facility
314, Brush Management
315, Herbaceous Weed Treatment
316, Animal Mortality Facility
317, Composting Facility
318, Short Term Storage of Animal Waste and By-Products
319, On-Farm Secondary Containment Facility
320, Irrigation Canal or Lateral
324, Deep Tillage
325, High Tunnel System
326, Clearing and Snagging
327, Conservation Cover
328, Conservation Crop Rotation
329, Residue and Tillage Management, No Till
330, Contour Farming
331, Contour Orchard and Other Perennial Crops
332, Contour Buffer Strips
333, Amending Soil Properties with Gypsum Products
334, Controlled Traffic Farming
336, Soil Carbon Amendment
338, Prescribed Burning
340, Cover Crop
342, Critical Area Planting
345, Residue and Tillage Management, Reduced Till
348, Dam, Diversion
350, Sediment Basin
351, Well Decommissioning
353, Monitoring Well
355, Groundwater Testing
356, Dike and Levee
359, Waste Treatment Lagoon
360, Waste Facility Closure
362, Diversion
366, Anaerobic Digester
367, Roofs and Covers
368, Emergency Animal Mortality Management
371, Air Filtration and Scrubbing
372, Combustion System Improvement
373, Dust Control on Unpaved Roads and Surfaces
374, Energy Efficient Agricultural Operation
375, Dust Management for Pen Surfaces
376, Field Operations Emissions Reduction
378, Pond
379, Forest Farming
380, Windbreak/Shelterbelt Establishment and Renovation
381, Silvopasture
382, Fence
383, Fuel Break
384, Woody Residue Treatment
386, Field Border
388, Irrigation Field Ditch
390, Riparian Herbaceous Cover
391, Riparian Forest Buffer
393, Filter Strip
394, Firebreak
395, Stream Habitat Improvement and Management
396, Aquatic Organism Passage
397, Aquaculture Pond
398, Fish Raceway or Tank
399, Fishpond Management
400, Bivalve Aquaculture Gear and Biofouling Control
402, Dam
410, Grade Stabilization Structure
412, Grassed Waterway
420, Wildlife Habitat Planting
422, Hedgerow Planting
423, Hillside Ditch
428, Irrigation Ditch Lining
428A, Irrigation Water Conveyance, Ditch and Canal Lining, Plain Concrete
428B, Irrigation Water Conveyance, Ditch and Canal Lining, Flexible Membrane
428C, Irrigation Water Conveyance, Ditch and Canal Lining, Galvanized Steel
430, Irrigation Pipeline
432, Dry Hydrant
436, Irrigation Reservoir
441, Irrigation System, Microirrigation
442, Sprinkler System
443, Irrigation System, Surface and Subsurface
447, Irrigation and Drainage Tailwater Recovery
449, Irrigation Water Management
450, Anionic Polyacrylamide (PAM) Application
453, Land Reclamation, Landslide Treatment
455, Land Reclamation, Toxic Discharge Control
457, Mine Shaft and Adit Closing
460, Land Clearing
462, Precision Land Forming and Smoothing
464, Irrigation Land Leveling
466, Land Smoothing
468, Lined Waterway or Outlet
472, Access Control
484, Mulching
490, Tree/Shrub Site Preparation
500, Obstruction Removal
511, Forage Harvest Management
512, Pasture and Hay Planting
516, Livestock Pipeline
520, Pond Sealing or Lining, Compacted Soil Treatment
521, Pond Sealing or Lining, Geomembrane or Geosynthetic Clay Liner
521A, Pond Sealing or Lining, Flexible Membrane
521B, Pond Sealing or Lining, Soil Dispersant
521C, Pond Sealing or Lining, Bentonite Sealant

521D, Pond Sealing or Lining, Compacted Clay Treatment
522, Pond Sealing or Lining - Concrete
527, Sinkhole Treatment
528, Prescribed Grazing
533, Pumping Plant
543, Land Reclamation, Abandoned Mined Land
544, Land Reclamation, Currently Mined Land
548, Grazing Land Mechanical Treatment
550, Range Planting
554, Drainage Water Management
555, Rock Wall Terrace
557, Row Arrangement
558, Roof Runoff Structure
560, Access Road
561, Heavy Use Area Protection
562, Recreation Area Improvement
566, Recreation Land Improvement and Protection
570, Stormwater Runoff Control
572, Spoil Disposal
574, Spring Development
575, Trails and Walkways
576, Livestock Shelter Structure
578, Stream Crossing
580, Streambank and Shoreline Protection
582, Open Channel
584, Channel Bed Stabilization
585, Stripcropping
587, Structure for Water Control
588, Crosswind Ridges
589, Cross Wind Trap Strips
590, Nutrient Management
591, Amendments for Treatment of Agricultural Waste
592, Feed Management
595, Pest Management Conservation System
600, Terrace
601, Vegetative Barrier
602, Equitable Relief
603, Herbaceous Wind Barriers
604, Saturated Buffer
605, Denitrifying Bioreactor
606, Subsurface Drain
607, Surface Drain, Field Ditch
608, Surface Drain, Main or Lateral
609, Surface Roughening
610, Salinity and Sodic Soil Management
612, Tree/Shrub Establishment
614, Watering Facility
620, Underground Outlet
629, Waste Treatment
630, Vertical Drain
632, Waste Separation Facility
633, Waste Recycling
634, Waste Transfer
635, Vegetated Treatment Area
636, Water Harvesting Catchment
638, Water and Sediment Control Basin
640, Waterspreading
642, Water Well
643, Restoration of Rare or Declining Natural Communities
644, Wetland Wildlife Habitat Management
645, Upland Wildlife Habitat Management
646, Shallow Water Development and Management
647, Early Successional Habitat Development-Mgt
649, Structures for Wildlife
650, Windbreak/Shelterbelt Renovation
654, Road/Trail/Landing Closure and Treatment
655, Forest Trails and Landings
656, Constructed Wetland
657, Wetland Restoration
658, Wetland Creation
659, Wetland Enhancement
660, Tree-Shrub Pruning
666, Forest Stand Improvement
670, Energy Efficient Lighting System
672, Energy Efficient Building Envelope
736, Crop By-Product Transfer, interim
724, Water Treatment Facility, interim
735, Waste Gasification Facility, interim
737, Reduced Water and Energy Coffee Conveyance System, interim
740, Pond Sealing and Lining, Soil Cement, interim
751, Individual Terrace, interim
753, Infiltration Ditch, interim
755, Well Plugging, interim
770, Livestock Confinement Facility, interim
775, Drainage Ditch Covering, interim
782, Phosphorus Removal System, interim
800, Controlling Existing Flowing Wells, interim
803, Water Well Disinfection, interim
805, Amending Soil Properties with Lime, interim
808, Soil Carbon Amendment, interim
809, Conservation Harvest Management, interim
810, Annual Forages for Grazing Systems, interim
812, Raised Beds, interim
815, Groundwater Recharge Basin or Trench, interim
817, On-Farm Recharge, interim
818, Water Conservation System, interim
821, Low Tunnel Systems, interim
823, Organic Management, interim

Other CSAF Practices

Traditional or cultural practices
Microbial products
Solar power generation
Grain bin construction
Pre-season drainage

Appendix B: Commodity List

CROPS
ALFALFA
ALMONDS
AMARANTH GRAIN
APPLES
APRICOTS
ARONIA (CHOKEBERRY)
ARTICHOKES
ASPARAGUS
ATEMOYA
AVOCADOS
BAMBOO SHOOTS
BANANAS
BARLEY
BEANS
BEETS
BIRDSFOOT/TREFOIL
BLUEBERRIES
BREADFRUIT
BROCCOFLOWER
BROCCOLI
BROCCOLINI
BRUSSEL SPROUTS
BUCKWHEAT
CABBAGE
CACAO
CACTUS
CAIMITO
CALABAZA MELON
CALALOO
CAMELINA
CANARY MELON
CANARY SEED
CANEBERRIES
CANISTEL
CANOLA
CANTALOUPES
CARAMBOLA (STAR FRUIT)
CARROTS
CASHEW
CASSAVA
CAULIFLOWER
CELERIAC
CELERY
CHERIMOYA
CHERRIES
CHESTNUTS
CHICORY/RADICCHIO
CHINESE BITTER MELON
CHRISTMAS TREES
CHUFAS
CINNAMON
CLOVER
COCONUTS
COFFEE
CORN
COTTON ELS
COTTON UPLAND
CRANBERRIES
CRENSHAW MELON
CRUSTACEAN
CUCUMBERS
CURRANTS
DASHEEN
DATES
DURIAN
EGGPLANT
EINKORN
ELDERBERRIES
EMMER
FIGS
FINFISH
FLAX
FLOWERS
FORAGE SOYBEAN/SORGHUM
GAILON
GARLIC
GENIP
GINGER
GINSENG
GOOSEBERRIES
GOURDS
GRAPEFRUIT
GRAPES
GRASS
GREENS
GROUND CHERRY
GUAMABANA/SOURSOP
GUAR
GUAVA
GUAVABERRY
GUAYULE
HAZEL NUTS
HEMP
HERBS
HESPERALOE
HONEY
HONEYBERRIES
HONEYDEW
HOPS
HORSERADISH
HUCKLEBERRIES
HYBRID POPLAR TREES
IDLE
INDIGO
ISRAEL MELONS
JACK FRUIT
JERUSALEM ARTICHOKES
JICAMA
JOJOBA
JUJUBE
JUNEBERRIES
KENAF
KHORASAN
KIWIBERRY
KIWIFRUIT
KOCHIA (PROSTRATA)
KOHLRABI
KOREAN GOLDEN MELON
KUMQUATS
LAMBS EAR
LEEKS
LEMONS
LENTILS
LESPEDEZA
LETTUCE
LIMES
LONGAN
LOQUATS
LYCHEE
MANGOS
MANGOSTEEN
MAPLE SAP
MAYHAW BERRIES
MEADOWFOAM
MILKWEED
MILLET
MIXED FORAGE
MOHAIR
MOLLUSK
MORINGA
MULBERRIES
MUSHROOMS
MUSTARD
NECTARINES
NIGER SEED
NONI
OATS
OKRA
OLIVES
ONIONS
ORANGES
PAPAYA

PARSNIP
PASSION FRUITS
PAWPAW
PEACHES
PEANUTS
PEARS
PEAS
PECANS
PENNYCRESS
PEPPERS
PERENNIAL PEANUTS
PERIQUE TOBACCO
PERSIMMONS
PINE NUTS
PINEAPPLE
PISTACHIOS
PITAYA/DRAGONFRUIT
PLANTAIN
PLUMCOTS
PLUMS
POMEGRANATES
POTATOES
POTATOES SWEET
PRUNES
PSYLLIUM
PUMMELO
PUMPKINS
QUINCES
QUINOA
RADISHES
RAISINS
RAMBUTAN
RAPESEED
RHUBARB
RICE
RICE SWEET
RICE WILD
RUTABAGA
RYE
SAFFLOWER
SAPODILLA
SAPOTE
SCALLIONS
SESAME
SHALLOTS
SORGHUM
SORGHUM DUAL PURPOSE
SORGHUM FORAGE
SOYBEANS
SPELT
SQUASH
STAR GOOSEBERRY
STRAWBERRIES
SUGAR BEETS
SUGARCANE
SUNFLOWERS
SUNN HEMP
TANGELOS
TANGERINES
TANGORS
TANGOS
TANNIER
TARO
TEA
TEFF
TI
TOBACCO CIGAR WRAPPER
TOBACCO BURLEY
TOBACCO BURLEY 31V
TOBACCO CIGAR BINDER
TOBACCO CIGAR FILLER
TOBACCO CIGAR FILLER BINDER
TOBACCO DARK AIR CURED
TOBACCO FIRE CURED
TOBACCO FLUE CURED
TOBACCO MARYLAND
TOBACCO VIRGINIA FIRE CURED
TOMATILLOS
TOMATOES
TREES TIMBER
TRITICALE
TRUFFLES
TURNIPS
VETCH
WALNUTS
WAMPEE
WASABI
WATERMELON
WAX JAMBOO FRUIT
WHEAT
WILLOW SHRUB
WINTER MELON
WOLFBERRY/GOJI
YAM

LIVESTOCK
ALPACAS
BEEF COWS
BEEFALO
BUFFALO OR BISON
CHICKENS (BROILERS)
CHICKENS (LAYERS)
DAIRY COWS
DEER
DUCKS
ELK
EMUS
EQUINE
GEESE
GOATS
HONEYBEES
LLAMAS
REINDEER
SHEEP
SWINE
TURKEYS

Partnerships for Climate-Smart Commodities Additional Specific Terms and Conditions February 2023

I. Overarching Statement

The following award terms and conditions are applicable to Partnerships for Climate-Smart Commodities agreements and are in addition to the USDA FPAC General Terms and Conditions. The award recipient must abide by all terms of this grant including, but not limited to, the General Terms and Conditions, the terms in the Funding Opportunity and associated Frequently Asked Questions, and this addendum. The recipient must also deliver on the planned objectives in the project narrative and budget narrative associated with this grant.

II. Eligibility and Highly Erodible Lands and Wetlands Compliance

In order to be eligible for an incentive payment as a part of the Partnerships for Climate-Smart Commodities, a producer must:

- Establish Farm Records with the Farm Service Agency (FSA) (have farm, tract, and field numbers in place);
- Complete an AD-2047 (Customer Data Worksheet to facilitate the collection of customer data for Business Partner Record);
- Certify highly erodible land conservation (HEL) and wetland conservation (WC) compliance via Form AD-1026, Highly Erodible Land Conservation (HELC) and Wetland Conservation (WC) Certification; and
- Certify that they are not a foreign person or entity.

Farm, tract, and field numbers are required for the producer, and ultimately the Partnerships for Climate-Smart Commodities recipient, to report climate-smart practice implementation to USDA, as well as to certify and maintain HELC/WC compliance. This will require that some producers who do not already have these numbers, like perennial crop growers or feedlots, establish these records with USDA's FSA. Farm, tract, field numbers, producer name, and Core Customer I.D. (CCID) will be provided by the recipient to the National Program Officer as a part of routine grant reporting. Recipients must ensure that producers receiving financial assistance or incentives through this project use the same name as is included in the relevant FSA Business File for that Farm ID in any contracts or similar documentation kept by the recipient.

Producers are not bound by the payment limitations and the adjusted gross income (AGI) limitations that are in place for other USDA programs.

In order to demonstrate HELC/WC compliance for Partnerships for Climate-Smart Commodities incentive payments, producers will need to request a copy of their subsidiary print from their

USDA FSA field office. The Subsidiary Print includes print year specific eligibility related information about a selected producer. The producer will then provide this documentation to the Partnerships for Climate-Smart Commodities recipients as proof of compliance. A current year subsidiary print will be required for each crop year that the producer receives a payment, and HELC/WC eligibility information is provided under the AD-1026 and Conservation Compliance sections of subsidiary (determined by year, which can change at any time during the year or in a subsequent year). As is the case already, field offices will not be expected to provide documentation to anyone besides the producer themselves (and must always comply with Section 1619 limitations if they ever do provide documentation to third parties). Producers must have control of the land for the term of their beneficiary contract.

Recipients are responsible for determining producer eligibility within the funding opportunity requirements. Recipients must inform producers of eligibility requirements and direct them to local USDA offices for requested information as necessary, including but not limited to, farm and tract establishment and Highly Erodible Land and Wetland Compliance determinations. Privacy of producers is a priority throughout this process, and recipients are responsible for maintaining producer privacy in the process.

At minimum, the recipient will collect and review subsidiary reports from participating producers. They will ensure that the producer is listed as "compliant" in all sections of the conservation compliance portion of subsidiary and "certified" for AD-1026 before an incentive payment is made. If payments to a producer span more than one Federal fiscal year, the recipient will review an updated subsidiary print each fiscal year to ensure that the status is still compliant.

III. Other Environmental and Cultural Resources Reviews

A Finding of No Significant Impact (FONSI) was signed by USDA NRCS on August 26, 2022. A copy of the Programmatic Environmental Assessment for Partnerships for Climate-Smart Commodities is available at www.usda.gov/climate-smart-commodities . USDA may determine that additional environmental and cultural resources review is needed for any particular action under Partnerships for Climate-Smart Commodities. The recipient must not execute any beneficiary contracts under this grant agreement prior to receipt of a letter from USDA that specifically details:

1) further procedures deemed appropriate by the Agency to ensure a completed National Environmental Policy Act (NEPA) review and all appropriate consultation requirements are met, and
2) additional instructions for any unanticipated discoveries or conditions.

A resolution of support is required for projects on Tribal lands from the governing body of the Tribe with jurisdiction over that land, if the applicant is not the Tribe nor an entity owned or

operated by that Tribe. USDA may approve alternative documentation for resolutions when USDA deems necessary and legally sufficient.

IV. Producer Benefits

USDA encourages the recipient to disclose to participating producers the manner and amount for which any market premiums derived from the development of the relevant climate-smart commodity will be shared between participating parties, including producers. USDA will be monitoring producer benefits, in particular those to small and underserved producers, throughout the grant period. Recipients agree that their project(s) will implement a plan for engaging small and underserved producers as laid out in this agreement.

V. Producer Data Protection and Disclosure

Recipients must ensure each producer has convenient access to any data collected from that producer or the producer's land and any associated modeling as part of the project. The recipient must provide each producer applying for benefits under this grant a description in writing of how their information, including but not limited to data about their farm and commodities, will be utilized, protected and shared as applicable.

VI. Other Data and Reporting Requirements

In addition to the reporting information provided in the statement of work and General Terms and Conditions, USDA will provide a template for the Detailed Progress Report, also known as the Partnerships for Climate-Smart Commodities (PSCS) Project Reporting Workbook. Within 30 calendar days of execution of this grant, a copy of this workbook will be posted at www.usda.gov/climate-smart-commodities or an alternative location provided to the recipient by the National Program Officer. USDA may provide updates to the PCSC Project Reporting Workbook or submission methods to streamline the data collection process and/or reduce the burden on the recipient throughout the grant period. Generally, these updates will be provided at least 3 months in advance of any required changes. The recipient must not transfer any data to foreign governments or foreign entities without prior approval from USDA.

USDA will provide a Technical Contact for this grant. The Technical Contact will have the responsibility of technical oversight for USDA for the project. The recipient is responsible for providing the technical assistance required to successfully implement and complete the project. The recipient must comply with any requests for information from the Technical Contact. The Technical Contact for this award is the National Program Officer assigned to this grant.

Prior to execution of this grant, the recipient must provide a shapefile depicting the project boundary for enrollment under this grant. Producer enrollment may not occur outside this boundary without modification of this grant.

Within 30 calendar days of execution of this grant, the recipient must provide to the National Program Officer a website address where enrollment information will be posted for producers for the project associated with this grant. Recipients will be responsible for the following reports:

- Submit quarterly performance reports that include a written progress report, as well as additional reporting on specific data elements contained in the most up-to-date version of the Partnerships for Climate-Smart Commodities Project Reporting Workbook. Additional information about each reported element is described in the Data Dictionary.
- Submit supplemental reports required to validate greenhouse gas (GHG) benefit data, including: (1) an initial project MMRV plan, (2) field-modeled GHG benefit reports, and (3) field-direct GHG measurement results, as applicable. Additional information about these reports is in included in the Data Dictionary.
- Submit copies of project outputs and deliverables (e.g., fact sheets, reports) as attachments in ezFedGrants along with quarterly performance reports.
- Report the version of COMET-Planner used to estimate GHG benefits of the project within each quarterly performance report. As COMET-Planner is updated, recipients must adopt the latest version of the tool as directed by USDA for use in performance reports.

Recipients must designate an individual as a member of the USDA Partnerships for Climate-Smart Commodities Learning Network (Partnerships Network); this representative should be identified in the Project Narrative for this grant. Each project includes a plan for up to two Partnerships Network virtual meetings and two in-person meetings a year during the project duration. Dates and other details on events will be posted at www.usda.gov/climate-smart-commodities or an alternative location provided to the recipient by the National Program Officer.

The Partnerships Network will be co-chaired by representative from the USDA Office of the Chief Economist and the Farm Production and Conservation Mission Area. The Partnerships Network will inform synthesis reports to be assembled by USDA on a range of topics related to the implementation of Partnerships for Climate-Smart Commodities projects, including:

- Lessons-learned as projects are implemented;
- Options for providing technical assistance;
- Procedures for measurement/quantification, monitoring, reporting, and verifying GHG benefits;
- Options for tracing climate-smart commodities through the supply chain;
- Mechanisms for reducing costs of implementation;
- A forum for discussion and learning regarding approaches to climate-smart agriculture and forestry implementation (including but not limited to deployment and

measurement/quantification, monitoring, reporting, tracking, and verification of associated greenhouse gas benefits and marketing of climate-smart commodities).
- Synthesis of outcomes; and
- Opportunities for USDA and others to inform future approaches to generating new and expanded markets for climate-smart commodities.

The Partnerships Network topics to be discussed will cover at minimum the areas described in previous FAQs and will evolve with USDA's ongoing project data analysis efforts and with input from the project recipients on the kinds of sessions that will be most helpful to them in building the diverse climate-smart markets associated with their projects. Participation may include at least one interview a year and include questions related to the following areas:

- Technical assistance approaches, methods, and successes and/or challenges
- Producer outreach approaches, methods, and successes and/or challenges
- Monitoring, measurement, reporting, and verification (MMRV) approaches, methods, and successes and/or challenges
- Marketing approaches, methods, and successes and/or challenges
- Partnership approaches, methods, and successes and/or challenges
- Data collection and storage approaches, methods, and successes and/or challenges
- Supply chain approaches, methods and successes and/or challenges, including approaches to traceability
- Supply chain benefits and demand for climate-smart commodities
- Perspectives on program design, climate-smart commodity definitions, and future approaches or opportunities
- Project successes and stories

USDA may also request producer exit reports at a later date. Additional marketing and branding-related requirements may be provided by USDA, including signage related to Partnerships for Climate-Smart Commodities.

VII. Competition and Anti-Competitive Practices

In connection with this grant, recipients may not prohibit or otherwise limit a producer from changing the provider of other services or materials not included as part of this grant. Recipients may not condition, limit, steer, or discriminate in their provision or sale of non-project business functions or products to producers based on their participation or non-participation in or use of any services provided as part of this grant. Additionally, funds in this agreement shall not be used for purposes or activities related to mergers or acquisitions.

VIII. Suspension and Disbarment

The provisions governing Suspension and Disbarment in subsection 1.a.8 shall also apply to fraud, embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or violations of the Federal civil antitrust or unfair trade practice laws.

IX. Special provisions for awards to for-profit entities as recipients

This section contains provisions that apply to awards to for-profit entities. These provisions are in addition to other applicable provisions of these terms and conditions, or they make exceptions from other provisions of the terms and conditions for awards to for-profit entities. For-profit entities that receive awards have two options regarding audits:

1) A financial related audit of a particular award in accordance with Generally Accepted Government Auditing Standards issued by the Comptroller General of the United States, in those cases where the for-profit entity receives awards under only one USDA program; or, if awards are received under multiple USDA programs, a financial related audit of all awards in accordance with Generally Accepted Government Auditing Standards issued by the Comptroller General of the United States; or

2) An audit that meets the requirements contained in 2 CFR 200 subpart F.

For-profit entities that receive annual awards totaling less than the audit requirement threshold in 2 CFR 200 subpart F are exempt from USDA audit requirements for that year, but records must be available for review by appropriate officials of Federal agencies or the Government Accountability Office.

X. Non-Disparagement

Recipients may not engage in any advertising deemed by USDA as disparaging to another agricultural commodity or competing product, or in violation of the prohibition against false and misleading advertising. Disparagement is defined as anything that depicts other commodities in a negative or unpleasant light via overt or subjective video, photography, or statements. Comparative advertising is allowable, provided the presentation of facts is truthful, objective, not misleading, and supported by a reasonable basis.