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:
NR233A750004G049		Date of Final Signature - 05/12/2028	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	CLEMSON UNIVERSITY 230 KAPPA STREET SUITE 200 CLEMSON SC 29634-9634 UEI Number / DUNS Number: H2BMNX7DSKU8 / 042629816 EIN:

7. NRCS Program Contact	8. NRCS Administrative Contact	9. Recipient Program Contact	10. Recipient Administrative Contact
Name: ALLISON COSTA	Name: Aileen Anderson	Name: Kari Buck	Name: Carrie Burri
(b)(6)			

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

15. Project Title/ Description: Expands markets for climate-smart peanuts, leafy greens, beef and forest products in SC and supports farmer and forester implementation and monitoring of climate-smart practices.

16. Entity Type: H = Public/State Controlled Institution of Higher Education

17. Select Funding Type

Select funding type:	☒ Federal	☒ Non-Federal
Original funds total	$70,000,000.00	$4,299,040.00
Additional funds total	$0.00	$0.00
Grand total	$70,000,000.00	$4,299,040.00

18. Approved Budget

Personnel	$13,952,843.10	Fringe Benefits	$5,118,253.12
Travel	$1,509,337.62	Equipment	$2,466,000.00
Supplies	$1,536,857.28	Contractual	$568,209.60
Construction	$0.00	Other	$44,848,499.28
Total Direct Cost	$65,008,639.00	Total Indirect Cost	$4,991,361.00
		Total Non-Federal Funds	$4,299,040.00
		Total Federal Funds Awarded	$70,000,000.00
		Total Approved Budget	$74,299,040.00

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: 2023.05.12 11:31:29 -05'00'	Date
Name and Title of Authorized Recipient Representative Sheila Lischwe Director of Sponsored Programs	Signature Sheila T. Lischwe, PhD, Director	Date Digitally signed by Sheila T. Lischwe, PhD, Director Date: 2023.05.12 10:05:48 -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 Clemson University (Recipient), 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 $74,299,040

TOTAL FEDERAL FUNDS $70,000,000
PERSONNEL $11,073,685
FRINGE BENEFITS $4,062,106
TRAVEL $1,197,887
EQUIPMENT $ 2,466,000
SUPPLIES $1,219,728
CONTRACTUAL $450,960
CONSTRUCTION (usually n/a) $0
OTHER $44,538,273 (PRODUCER INCENTIVES $31,557,470)
TOTAL DIRECT COSTS $65,008,639
INDIRECT COSTS $ $4,991,361

TOTAL NON-FEDERAL FUNDS $4,299,040
PERSONNEL $1,866,305
FRINGE BENEFITS $758,172
TRAVEL $0
EQUIPMENT $0
SUPPLIES $0
CONTRACTUAL $0
CONSTRUCTION (usually n/a) $0
OTHER $992,199
PRODUCER INCENTIVES $0
TOTAL DIRECT COSTS $3,616,676
INDIRECT COSTS $682,364

Recipient has an approved Negotiated Indirect Cost Rate Agreement (NICRA) with a rate of 26% percent and a base of $19,197,543.

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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Building Partnerships for Climate-Smart Commodities in South Carolina
PROJECT NARRATIVE

i. Executive Summary of Pilot Project

Clemson University and South Carolina State University, the two land-grant institutions of South Carolina, have established strategic partnerships with the 27 entities listed below. This coalition of partners will execute a pilot project to provide incentives to farmers to implement selected climate-smart (CS) production practices (cover crops, reduced tillage, mulching, nutrient management, incorporation of legumes in forages, and uneven-aged silviculture). The project will measure and verify the carbon and greenhouse gas (GHG) benefits associated with the CS practices and will support the development of markets for the resulting climate-smart commodities (CSC). The state-wide project will focus on representative agricultural production sectors of South Carolina and the Southeast, including vegetables, peanuts, beef cattle and forest products, and will ensure meaningful involvement of small and underserved producers.

A. Contact Information.

Paula Agudelo, Ph.D. Lead Project Administrator
104 Barre Hall. Clemson University
Clemson, SC 29634
pagudel@clemson.edu (864)656-2810

B. List of Project Partners

American Peanut Council
Aster Global Environmental Solutions
Barry Graden, Forest Certification Consultant
CU Wood Utilization Institute
Forest Association of South Carolina
Help for Landowners
Mixon Seeds
Palmetto Agribusiness Council
Petrichor Global
SC Cattleman's Association
SC Peanut Board
SC Southern SARE
SC Timber Producers Association
SC Forage and Grazing Lands Coalition
SC Farmer's Markets (SCDA)
SC Specialty Crop Association (SCDA)
The Long Leaf Alliance
Tidewater Lumber and Moulding, Inc.
US Endowment for Forests & Communities
WP Rawl

C. List of underserved/minority-focused project partners

Center for Heirs Property Preservation
Gullah Geechee Community
South Carolina Black Farmer's Association
South Carolina State University
SC New & Beginning Farmers Program
Farmer Veteran Coalition of South Carolina
Women in Agriculture
Women Owning Woodlands

D. Compelling need for the project

Adoption of CS practices in South Carolina is low (*e.g.,* 6% use cover crops and 23% use reduced till) (NASS Census of Agriculture, 2017). Farmers are still weighing the economic, practical, and environmental impacts of integrating these practices into their production systems. There is a compelling need to understand the barriers to adoption and to provide education and technical support to assist and promote implementation of CS practices. Likewise, quantification of GHG emissions is rare in the state. We need to estimate the potential to contribute to reaching the nation's GHG reduction goal by 2030. This pilot project starts to develop an emission inventory by commodities and evaluates the capacity of the state to produce CSC.

South Carolina and Southeastern agriculture are challenged by highly degraded soils with organic matter content of less than 1% and low water holding capacity (McNulty *et al*., 2015).

Most Southeastern soils also contain a subsurface compacted zone (hardpan) that limits root penetration and predisposes crops to drought stress, reduces yields, and impairs climate adaptation of cropping systems. Intense and poorly distributed rainfall and high temperatures also contribute to soil degradation, and intensive tillage exacerbates the issue (Thaler *et al.*, 2021). To manage soil compaction, farmers practice tillage, which adds to production costs, depletes organic matter, and leaves the soil prone to re-compaction. To address these challenges, it is imperative that CS practices are used to increase soil organic carbon, soil health, crop productivity, and climate resilience.

For historical and socioeconomic reasons, South Carolina has a large base of small and underserved farmers. The 2017 Agricultural Census (NASS, 2017) shows 92% of farms in South Carolina have less than $100,000 in value of sales and are considered small (22,703 out of a total of 24,791 farms). Almost 50% (12,352 farms) of the farms are less than 50 acres, and over 90% are under 500 acres. Approximately 29% of South Carolina farmers are women, 7% are black, 13% have veteran status, and 29% identify as new and beginning farmers (NASS, 2017). Through strategic partnerships, this pilot project aims to have meaningful involvement of these small and underserved producers.

Over half (55%) of **forest lands** in the Southeastern United States are held by private owners with less than 200 acres (Butler *et al.*, 2021). The dominant paradigm for management is even-aged pine, supported by the manufacturing and marketing infrastructure. This approach resets carbon sequestration back to below 0 net ecosystem productivity (NEP), and does not reach the positive NEP range until the stand is harvested again, creating a self-reinforcing cycle of loss of carbon to the atmosphere. Older stands of potentially more valuable trees that can sequester more carbon are lost. Non-industrial private forests and family landowners adopt industrial practices and compete with large companies. While they dominate the landscape, the potentially vast contributions of the smaller landowners to NEP are no greater than those of industrial-scale harvesting and potentially more negative for GHG, as cumulative sequestration effects are not managed at the landscape scale.

Cow-calf production is one of the largest agricultural activities in South Carolina per unit of land (NASS Census of Agriculture, 2017). Forages are the primary feed source used due to favorable climatic conditions, a wide range of adapted species, and access to local resources (*e.g.*, poultry litter). Most cow-calf systems are based on perennial grasses with a high reliance on off-farm inputs (e.g. synthetic fertilizers and hay) to support forage production and animal performance. Life-cycle assessments of the US Beef Industry show that the cow-calf and stocker operations produce 70 to 80% of the GHG emissions from the beef sector. Management strategies to increase nutrient cycling, resilience, and profitability of cow-calf production systems are warranted. Practices that increase productivity (kgs of meat per hectare) can decrease the emission rates per pound of meat and reduce the environmental footprint of beef production.

South Carolina leads the production of **leafy greens** in the Southeastern United States, with more than 300 farmers (NASS Census of Agriculture, 2017) in conventional and organic acreage that supply processors, farmers markets, direct grocers and restaurant purveyors. Leafy greens include collards and kale (*Brassica oleracea*), turnip (*B. rapa*), and mustard (*B. juncea*) greens.

Leafy greens have an extensive cultural and historical production background representing a diverse farmer profile (25% of vegetable farmers in SC are non-white and 35% are female). These crops and market capture a large percentage of underserved farmers in rural areas allowing for an opportunity to build profitability and sustainability for these farmers.

The Southeast produces over 65% of all **peanuts** in the U.S. (NASS Census of Agriculture, 2017). The peanut industry has recognized the importance of gathering data to show the sustainability of peanut cropping systems. Peanut farmers can access the *Sustainable U.S. Peanuts Initiative* platform, managed by the American Peanut Council (APC), to enter their data voluntarily. The goal of the program is to document and verify the field-level environmental footprint of peanut production. Farmers who have enrolled in the *U.S. Cotton Trust Protocol* can use the same account to sign up for the peanut platform. We have partnered with the APC to increase enrollment in this initiative that provides farmers scores for eight environmental metrics along with state and national benchmarks.

E. Approach to minimize transaction costs associated with project activities

We will minimize transaction costs by providing targeted technical assistance, developing educational resources, mapping and assessing the supply chain to foster new market opportunities for CS products, and by providing financial incentives for implementation of CS practices. To estimate farmer's profitability, traditional enterprise budget analyses will be built and made readily available for each commodity and CS practice. Clemson University will use its forest and agricultural land, which includes six Research and Education Centers throughout the state and a 17,500-acre Experimental Forest, to test and implement practices as pilots and demonstrations to engage private landowners. South Carolina State University will also set up demonstration sites.

F. Approach to reduce barriers to implementing CS practices for the purpose of marketing CSCs

Ours is a systematic approach that combines financial incentives to offset costs of implementing practices, education on GHG benefits and environmental benefits, technical assistance, demonstrations, creation and testing of a CS label, and a user-friendly website for outreach and profitability analysis. A short survey will be prepared to collect information from farmers related to current practices and willingness to implement CS practices. This 5-minute survey will be circulated among farmers through county extension agents, crop advisors, and soil-water conservation district specialists.

Clemson's Cooperative Extension is currently executing a *Racial Equity and Justice Conservation Cooperative Agreement* designed to identify barriers for adoption of CS practices. The results of this funded study *"Increasing adoption of agriculture practices by underserved farmers to mitigate climate change in South Carolina"* will inform our project and will help design educational materials and implementation plans. They have conducted focus groups across the state of South Carolina to identify barriers to underserved farmers and determine what might be done to remove indicated barriers. Information learned through this project will be used to continue promoting education of USDA/NRCS programs and the availability of cost-share resources. There will be no overlap between the activities performed for that project and this

one, but we will use what is learned in their investigations to design our implementation more effectively.

G. Geographic Focus

This proposal focuses on representative agricultural and forestry sectors of South Carolina and intends to influence adoption of CS production practices in almost all its counties. Because South Carolina ecosystems and socioeconomic conditions are representative of the Southeastern United States, our project is highly scalable and of regional relevance. Initially, we had selected counties in the state where the commodities were primarily grown, but after a few meetings with different stakeholders, we realized that leaving enrollment open to any county in the state would help us be more inclusive and reach a higher diversity of enrollees.

H. Project management capacity of partners, including a description of existing relationship with and prior experience working with producers, promoting CS activities and marketing CSCs.

We will capitalize on the historically strong roles of Clemson University and South Carolina State University in advocating for sustainable land management practices among their stakeholders through research, education, and outreach. Our project represents a large coalition of partner organizations who have been focused on conservation and education in the region. Clemson University and South Carolina State University have earned the trust of the landowners in the State, with whom they have long-standing and productive relationships. The strategic partners and both universities have conducted on-farm studies, demonstrations, and trainings to encourage adoption of CS practices. The Cooperative Extension Services encompass an advanced network of educators across the state, with a presence in every county, and research support within each of the regions of the state.

Our listed partners will have meaningful participation in the project in three major ways:

1. They will give the project access to their members through announcements, meetings, and allowing us to schedule informational, recruiting and training events during their meetings.
2. They will provide credibility to the pilot project by supporting joint educational efforts and will provide additional context for the specific considerations in each type of farm and system.
3. They will carry the project onward after the five-year pilot is completed. Members will have shared experiences and support networks that will help solidify the sustainability of the project's objectives.

ii. A plan to pilot climate-smart agriculture and forestry practices on a large scale

A. Description of CS practices to be deployed

The implementation of the selected CS practices (summarized in Table 1) will be directed by Dr. Bhupinder Farmaha (agricultural) and Dr. Patrick Hiesl (forestry), both of whom work regularly with producers. An Implementation Coordinator will schedule recruiting events, keep track of enrollees, and help to coordinate technical assistance.

We propose to evaluate **cover crops** as single species or mixtures under conventional and **reduced tillage** in peanut and vegetable cropping systems to determine cover crop-by-tillage

interaction effects on soil moisture retention, GHG emissions, soil carbon, and crop productivity. The proposed activities will determine suitable cover crops for the state and identify their benefits compared with conventional monocropping practices.

Leafy Green farmers will have the option of seeding sudangrass, sun hemp, pearl millet, buck wheat or combinations of these warm season cover crops in the spring. The cover crop will be terminated in August, and the farmer will have the option of terminating with a roller-crimper, mowing or tilling the residue into the soil. The farmer can then plant the leafy brassica into the cover crop residue through direct seeding or by transplanting. A proximal field will include the farmer's standard practices for comparison. Weed pressure will be assessed three times during the cover crop season and three times during the vegetable growing season. Yield, quality and profit margins will be recorded and used to make comparisons among practices. Other environmental measurements include soil CO_2 respiration, methane, pH, redox real-time soil measurements (dataloggers), soil total and speciated carbon accumulation, crop carbon assimilation and total carbon budget.

Mulching will be incentivized in leafy green/vegetable production systems. For living mulches, Crimson Clover or Ladino Clover will be seeded in the fall. A strip tiller will cultivate a strip into the living cover crop before planting the spring leafy green crop. The living mulch will be mowed to keep it from competing with the crop. Farmers will also have the option of utilizing a conventional polyethylene mulch or UV-reactive mulch. This practice will be incentivized for higher value transplanted organic leafy greens and for conventional farmers with high weed pressure and difficulty with moisture management.

Incorporating legumes in pastures has the potential to improve forage quality, reduce GHG emissions per unit of beef, and decrease the need for nitrogen fertilization. Despite the good nutritive value of perennial grass forages, when grown in a monoculture they require high levels of nitrogen fertilization to produce adequate forage biomass for economic stocking rates (Teutsch *et al*., 2005). Including legumes in forage programs can improve profitability through reduced feed costs and improved beef weight gains, but it can also reduce GHG emissions. Excess N fertilization from livestock operations are important sources of GHG emissions. This pilot will focus on incorporating alfalfa, clovers and sun hemp due to their adaptability to weather conditions and to the livestock operations statewide.

Nutrient Management through use of chicken manure will also be incentivized in forage pastures. Poultry litter is a good source of slow-release nutrients, including potassium, phosphorus, and nitrogen. In South Carolina, the poultry industry is comprised primarily of broiler production which generates poultry litter as waste and allows for local access. In addition to improving soil fertility, the application of poultry litter increases organic matter and water infiltration in soil and is a viable alternative to decrease the input of synthetic fertilizer.

Prescribed grazing or rotational grazing involves subdividing a pasture into several small paddocks using temporary or permanent cross fencing. Compared with continuous grazing, this system offers several benefits such as higher production and utilization efficiency of forages

with a simultaneous increase in animal gain per area and carbon sequestration while decreasing the CH4 emission intensity (kilogram of CO_2 equivalents per kilogram of meat).

Uneven-aged silviculture enhances forest resilience, defined as the ability of a forest to absorb disturbances and re-organize under change to maintain similar structure and function (Scheffer et al. 2009). Resilient forests are a prerequisite for climate change mitigation as well as the provision of other ecosystem goods and services. Current consensus indicates that managing forests as a complex ecosystem (e.g., uneven-aged stands) promotes resilience under uncertain future conditions such as climate change (Puettmann 2011; O'Hara 2013).

Table 1. Climate-smart practices being deployed in this pilot project and projected benefits.

Climate-Smart Practice	NRCS Conservation Practice Standard	Climate-Smart Commodity	GHG Benefits COMET Planner*	Environmental and Agronomic Benefits	
Cover Crops	CPS 340	Peanut Leafy Greens	CO_2 (35) N_2O (1)	- increase soil organic matter - improve soil aggregate stability - improve water quality - reduce weed & pest pressure	- improve moisture management - reduce soil compaction - supply N to the next crop - improve habitat for pollinators
Residue &Tillage Management	CPS 329	Peanut	CO_2 (15) N_2O(1)	- increase soil organic matter - improve soil tilth	- reduce erosion - increase crop productivity
Incorporation of Legumes	CPS 512	Forages (Beef Cattle)	CO_2 (50)	- improve livestock nutrition - increase forage supply - reduce soil erosion	- improve water quality - improve air quality - improve soil health
Prescribed Grazing	CPS 528	Forages (Beef Cattle)	CO_2 (4) N_2O (2)	- improve species composition & vigor of plant communities. - improve quantity and/or quality of forage for grazing	- improve watershed function. - reduce soil erosion - improve quantity and quality of wildlife food/cover
Nutrient Management (chicken manure)	CPS 590	Forages (Beef Cattle)	CO_2 (15) N_2O (-14)	- improve plant health & yield - lower excess nutrients in water - reduce GHG emissions	- reduce emissions of ozone precursors. - improve soil organic matter
Reduced Till	CPS 345	Leafy Greens	CO_2 (41) N_2O (3)	- reduce soil erosion - reduce particulate emissions - improve soil health	- increase soil organic matter - reduce energy use
Mulching	CPS 484	Leafy Greens	CO_2 (32)	-improve moisture management - reduce irrigation energy use - reduce soil erosion	- improve crop yield and health - increase organic matter - reduce particulate emissions
Uneven-aged Sylviculture	CPS 666	Forest products		- improve forest health - reduce pest & water stress - initiate stand regeneration - reduce fire hazards	- better wildlife/pollinatorhabitat - improve quantity, quality, and timing of water yield - increase carbon storage

* COMET Planner predicted Greenhouse Gas (GHG) reductions, CO_2, CH_4, or N_2O in (CO_2e) per 100 acres

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

All producer recruiting events will be scheduled jointly between Clemson University and South Carolina State University. Producers and landowners will be recruited primarily through strategic informational meetings with each of the partners, targeting different demographics and commodities. The recruiting events will be conducted in different geographic regions of the state and directed to enrolling a representation of management styles and farm sizes, while ensuring meaningful participation of underserved farmers.

First-year trials, testimonials and results from early adopters will be used to develop materials that describe and demonstrate the benefits of CS practices. These materials will form an educational basis for on-farm field days and educational events to recruit additional producers.

We plan to implement CS forestry practices on over 5,000 acres over a five-year period. Annually, we aim for 360 acres in the restoration category, 500 acres in the improvement category, and 500 acres in the maintenance category. This acreage will be represented by approximately 40 forest owners that will receive financial incentives for the implementation of CS practices. We will also implement a cluster sales approach with small and minority-owned forests with 7 cluster sales/year consisting of approximately 100 acres each with an average of 4 owners. This will make a total of 500 minority-owned acres with CS management (minimum of 20 owners).

For agricultural CS practices (Tables 3 and 4), the target is to recruit a total of at least 270 farmers paid via Clemson and 240 farmers paid via South Carolina State University. These numbers would be the absolute minimum, if all participants enroll the maximum number of acres, but it clould be as 3,300 (if all participants enroll the minimum acreage). The real number and a solid target is probably around 30 enrollees from each University. For peanut, the institutions will start with a combined goal of 7,400 acres in year 1 and grow to 6,000 acres per practice in year 5. For beef cattle, the universities will start with 3,500 acres per practice in year 1 and grow to 3,900 acres in year 5. For leafy greens, the universities will start with 245 acres in year 1 and grow to 480 acres per practice on year 5.

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

Concise and clear educational documents with information on the recommended CS practices will be shared with participants at the outset of the project. For example, for cover crops the document would contain information on species, planting, seeding rate, management, and termination. Contact information for Extension personnel will be shared with program participants for troubleshooting and sharing information, and for scheduling farm visits. Field days will be organized on farms to demonstrate practices and to discuss experiences and perceptions with producers. Short videos will be produced to document farmer experiences on their use of CS practices. Information will be distributed through the project website, annual partner meetings and established Extension/consultant/NRCS channels.

Technical assistance will be provided primarily by properly trained and experienced Extension associates. There will be two dedicated associates per commodity, for a total of eight working exclusively for this project. These associates will have the support of Extension agents throughout the state and of faculty in each of the two universities. The steering committee and other participating scientists are committed to contributing directly to the trainings and to developing and reviewing educational materials. The three technical coordinators (Implementation, Measuring and Marketing Development) are also responsible for providing training in their specific areas of expertise.

Extension associates for the pilot project will join the existing Program Teams at Clemson University's Cooperative Extension (Horticulture, Agronomy, Livestock, and Natural Resources, respectively for each of the commodities) and will coordinate efforts with other existing

Extension associates and agents. They will be responsible for conducting pre-implementation visits to ensure the enrolled lands are a good fit for the recommended practices and that the grower understands the technical considerations before implementation. They will also be responsible for conducting post-implementation visits to enrolled growers for continued technical assistance and verification of proper implementation before incentive payment.

We expect to have at least four meetings per year for recruiting purposes. These will have short educational components but will be mostly tailored to the expectations and needs of the partner inviting us to meet their members (e.g. New and Beginning Farmers, Veteran Farmers, etc.). Our focused recruiting efforts will happen in January through March every year.

We expect to have at least four meetings per year for training/educational purposes, all in different locations across the state and focused by commodity when appropriate. Enrolled growers will be required to participate in training for the practices that they will implement. We will offer in-person workshops and on-farm demonstrations, and will develop online tutorials.

Table 2. Timeline of Activities for the 5-year duration of the Project.

		YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5	
ACTIVITY	Responsible	1	2	1	2	1	2	1	2	1	2
Plan to pilot climate-smart practices											
Recruiting of producers and landowners	Implementation Team										
Enrollment of underserved and small producers	Implementation Team										
Enrollment of early adopters	Implementation Team										
Provide technical assistance and training	Implementation Team										
Provide financial assistance to farmers	Implementation Team										
Develop web base interface (formats, data access)	Coordination Team										
Measurement, reporting and verification of GHG											
Monitoring implementation of practices	Measurement Team										
COMET Planner and COMET-Farm User Training	Measurement Team										
Data entry in COMET-Farm	Measurement Team										
Measurements in field	Measurement Team										
Reporting and tracking of GHG benefits	Measurement Team										
Verification of GHG benefits (Third party)	Measurement Team										
Measurement of ecosystem service benefits	Measurement Team										
Develop markets for climate-smart commodities											
Creation of Producer Survey	Market Team										
Deployment of Producer Survey	Market Team										
Analysis and Interpretation of Producer Survey	Market Team										
Creation of Consumer Survey	Market Team										
Deployment of Consumer Survey	Market Team										
Analysis and Interpretation of Consumer Survey	Market Team										
Creation of Industry Survey	Market Team										
Deployment of Industry Survey	Market Team										
Analysis and Interpretation of Industry Survey	Market Team										
Plan to track CS commodities through supply chain	Market Team										
Estimate economic benefits for producers	Market Team										
Post-project potential (risk and scalability)	Market Team										
Project Monitoring and Evaluation											
Kick-off Meeting	Coordination Team										
Orientation and training of hired personnel	Coordination Team										
Financial and Performance reports as required	Coordination Team										
Annual meeting and review (steering committee/ partners/coordinators/stakeholders/students)	All										
Assessment of education and communication	All										

Participation in Partnership Network	Coordination Team									

The project team (detailed in the Budget Narrative) consists of 35 research and Extension personnel who have vast experience working with producers, providing educational materials, demonstrations, and hands-on workshops. The expertise spans relevant areas in pest management, soil health, crop physiology, silviculture, analytical chemistry, soil fertility, ecology, and others.

Proposed Benchmarks for every year

Quarter 1: Enrollment of at least 50% of target acreage
Quarter 2: A minimum of two in-person group trainings offered
Quarter 3: Implementation of at least 50% of CS practices by enrollees
Quarter 4: Payment of at least 50% of enrollees

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

Financial assistance for producers will be provided as direct payments to farmers to cover the cost of implementing CS practices and will use the South Carolina NRCS Payment Schedule as reference. Clemson University and South Carolina State University will enroll participants in their respective vendor platforms to make and track these payments. The summary of agricultural payments per practice and by commodity for Clemson University is summarized in Table 3. South Carolina State will use the same calculations for an additional 240 farmers.

Table 3. Summary of financial incentives provided by **Clemson University** to farmers for Climate-Smart Agricultural Practices.

CS Practice by Commodity	**funds requested**		**UNIT**	**UNIT COST**	Units Year 1	Units Year 2	Units Year 3	Units Year 4	Units Year 5	Notes
Peanut										
Cover Crops (CPS 340)	$2,800,000		acre	$100	5,000 ac ≥20 growers	5,000 ac ≥25 growers	6,000 ac ≥30 growers	6,000 ac ≥30 growers	6,000 ac ≥30 growers	cap of 200 ac per grower
Residue &Tillage Management (CPS 329)	$1,400,00		acre	$50	5,000 ac ≥20 growers	5,000 ac ≥25 growers	6,000 ac ≥30 growers	6,000 ac ≥30 growers	6,000 ac ≥30 growers	cap of 200 ac per grower
Beef Cattle										
Incorporation of Legumes (CPS 512)	$5,000,000		acre	$250	4,000 ac ≥40 growers	4,000 ac ≥40 growers	4,000 ac ≥40 growers	4,000 ac ≥40 growers	4,000 ac ≥40 growers	cap of 100 ac per grower
Prescribed Grazing (CPS 528)	$750,000		acre	$50	3,000 ac ≥30 growers	3,000 ac ≥30 growers	3,000 ac ≥30 growers	3,000 ac ≥30 growers	3,000 ac ≥30 growers	cap of 100 ac per grower
Nutrient Management (poultry litter/ CPS 590)	$1,200,000		acre	$80	3,000 ac ≥30 growers	3,000 ac ≥30 growers	3,000 ac ≥30 growers	3,000 ac ≥30 growers	3,000 ac ≥30 growers	cap of 100 ac per grower
Leafy Greens										
Cover crops (CPS 340)	$1,275,000		acre	$1,500	125 ac ≥25 growers	125 ac ≥25 growers	200 ac ≥40 growers	200 ac ≥40 growers	200 ac ≥40 growers	cap of 5 ac per grower
Reduced Till (CPS 345)	$1,275,000		acre	$1,500	125 ac ≥25 growers	125 ac ≥25 growers	200 ac ≥40 growers	200 ac ≥40 growers	200 ac ≥40 growers	cap of 5 ac per grower
Mulching (CPS 484)	$1,275,000		acre	$1,500	125 ac ≥25 growers	125 ac ≥25 growers	200 ac ≥40 growers	200 ac ≥40 growers	200 ac ≥40 growers	cap of 5 ac per grower
TOTAL	**$14,975,000**				**20,375 ac ≥215 growers**	**20,375 ac ≥225 growers**	**22,600 ac ≥280 growers**	**22,600 ac ≥280 growers**	**22,600 ac ≥280 growers**	

CS: Climate-Smart
CPS: Conservation Practice Standard

Table 4. Summary of financial incentives provided by **South Carolina State University** to farmers for Climate-Smart Agricultural Practices.

CSAF Practice by Commodity	Unit	Unit Cost	Units Year 1	Units Year 2	Units Year 3	Units Year 4	Units Year 5	Total # of Farmers 240
Peanut								
Cover Crops (CPS 340)	Acre	$100	2400 acres 20 growers $240,000	3000 acres 25 growers $300,000	3600 acres 30 growers $360,000	4200 acres 35 growers $420,000	4800 acres 40 growers $480,000	cap of 200 acres per grower Total Comp.= $1,800,000
Reduced Till	Acre	$50	2400 acres 20 growers $120,000	3000 acres 25 growers $150,000	3600 acres 30 growers $180,000	4200 acres 35 growers $210,000	4800 acres 45 growers $240,000	cap of 200 acres per grower Total Comp.= $900,000
Total			$360,000	$450,000	$540,000	$630,000	$720,000	$2,700,000
Beef Cattle								
Incorporation of Legumes (CPS 512)	Acre	$250	600 acres 6 growers $150,000	700 acres 7 growers $175,000	800 acres 8 growers $200,000	900 acres 9 growers $ 225,000	1000 acres 10 growers $250,000	cap of 100 ac per grower Total Comp.= $1,000,000
Prescribed Grazing (CPS 528)	Acre	$50	500 acres 5 growers $25,000	600 acres 6 growers $30,000	700 acres 7 growers $35,000	800 acres 8 growers $40 ,000	900 acres 9 growers $45,000	cap of 100 ac per grower Total Comp.= $175,000
Nutrient Management (Chicken manure) (CPS 590)	Acre	$80	500 acres 5 growers $40,000	600 acres 6 growers $48,000	700 acres 7 growers $56,000	800 acres 8 growers $ 64,000	900acres 9 growers $72,000	cap 100 ac per grower Total Comp.= $280,000
Total			$215,000	$253,000	$291,000	$329,000	$367,000	$1,455,000
Leafy Greens								
Cover crops (CPS 340)	Acre	$1,500	300 acres 30 growers $450,000	350 acres 35 growers $525,000	400 acres 40 growers $600,000	450 acres 45growers $675,000	500 acres 50 growers $750,000	cap of 10 ac per grower Total Comp.= $3,000,000
Reduced Till (CPS 345)	Acre	$1,500	152 acres 19 growers $228,000	184 acres 23 growers $276,000	224 acres 28 growers $336,000	264 acres 33 growers $396,000	288 acres 36 growers $432,000	cap of 8 ac per grower Total Comp.= $1,668,000

Mulching (CPS 484)	Acre	$1,500	120 acres 15 growers $180,000	160 acres 20 growers $240,000	200 acres 25 growers $300,000	240 acres 30 growers $360,000	280 acres 35 growers $420,000	cap of 8 ac per grower Total Comp.= $1,500,000
Cover Crop	Select Underserved and socially disadvantaged farmers will be provided cover crop seeds							$469,470)
Total			$858,000	$1,041,000	$1,236,000	$1,431,000	$1,602,000	$6,168,000
Total Farmer Incentive Payments Budget (Peanut + Beef Cattle + Leafy Greens)								$10,323,000

CPS: Conservation Practice Standard
CSAF: Climate Smart Agriculture Farming

We will provide payments to landowners for the implementation of CS forestry practices in the categories of restoration, improvement, and maintenance. As different conservation practices can be applied to manage forests climate smart, we will provide direct payment for a variety of activities such as prescribed fire (CPS 338), mechanical and chemical site preparation (CPS 490), herbaceous weed control (CPS 315), planting (CPS 612), stand improvement (CPS 666), and early successional habitat development and management (CPS 647). Each activity has a distinct per acre payment associated with it that is outlined in the budget. Afforestation tree planting, stand improvement and early successional habitat development in mature stands also include a payment to offset foregone revenue with the traditional management practice.

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

This pilot project will enroll at least 510 farmers (270 with Clemson and 240 with SC State) and 40 forest landowners, with enrollment depending on sizes of parcels enrolled each year to meet the target acreage for the commodity. At least 50% of these participants will be historically underserved and small landowners. In addition to this, utilizing the help of the Center for Heirs Property Preservation, we will recruit annually four to six minority forest owners to form a cluster sale of approximately 100 acres, for a total of 20 to 30 minority forest owners. A total of almost **$27.5M will go directly to producers in the form of financial assistance**: ~$20.8M Clemson (~$15M for agricultural crops and ~$5.8M for forest incentives) and $11M SCSU; with an additional ~$5M will go to producers in the form of technical assistance.

iii. A measurement/quantification, monitoring, reporting, and verification plan

The measurement plan will be directed by Dr. Nishanth Tharayil (agricultural) and Dr. Tom O'Halloran (forestry). A Measurement Coordinator will orchestrate measurement activities, track entering of data in COMET-Farm, and maintain monitoring and verification data.

A. Approach to greenhouse gas benefit quantification, including methodology approach consistent with the section titled "Quantification Requirements"

We will use a two-prong approach for the quantification of GHG fluxes associated with each of the CS practices deployed: 1) Estimation based on use of COMET Planner and by entering data in COMET-Farm, and 2) Direct measurement of GHG emissions on 10% of the farms enrolled.

We will use the eddy covariance technique to measure **forest ecosystem carbon fluxes**. This method has been applied to measure carbon fluxes and monitor GHG emissions for various agricultural management strategies (Hernandez-Ramirez *et al.*, 2011; Suyker and Verma, 2010; Taylor *et al*., 2013). Eddy covariance is an effective tool for quantifying key carbon fluxes that define carbon footprints because it allows for continuous measurement of carbon flow at the landscape scale. The eddy flux towers will also support environmental sensors that quantify abiotic drivers of ecosystem function and GHG fluxes (*e.g.,* sunlight, rainfall, soil moisture), as well as measures of the state of the biota (*e.g.,* greenness, albedo). Environmental sensor measurements will be made every 15 seconds and converted to one-minute averages and stored locally in a datalogger. Fluxes will be calculated every 30 minutes in the logger and made available online in real-time via cellular modem.

The approach is to measure gas flux along a successional continuum (clearcut-old field to mature uneven-aged stands). The goal is to measure GHG exchange in clearcut-old fields that will be undergoing restoration (re-afforestation), improvement (mostly even-aged stands undergoing selective harvest), and maintenance (selective harvest in uneven-aged, mature and CS stands). Two towers will be put in each of these conditions.

Ecological impacts will be measured along the same continuum, including pollinator diversity, forest pests and pathogens, and bird diversity. Birds and pollinators are included because of the marketing potential for CS, bird, and pollinator-friendly timber products, and because they are well-documented as indicators of ecosystem conditions. Forest pests and pathogens are included because of the potential critique of uneven-aged management causing disturbance, injuries, and entry points for pests and diseases. Silviculture will also be assessed along the same gradient. Silvicultural investigations support understanding growth and biomass of trees, above and below-ground carbon in soils and woody debris.

The spatial scale of these GHG and ecological impact studies will be expanded from the six stands in which the GHG will be installed to a landscape-scale study of over 50 sites spread across all the study counties. The sites will be selected along the same continuum as above, using a stratified random design to ensure balanced representation. Typical occupancy analysis for wildlife studies will be applied to pollinators, plant diversity, and birds.

Soil CO_2, CH_4, and N_2O emissions will be measured directly in **agricultural fields** using soil flux chambers at 10% of enrolled peanut, leafy greens and beef cattle farms. Measurements will be conducted via a mobile GHG laboratory that houses a mass spectrometer connected via a multiplexer to multiple automated soil chambers. The soil GHG flux measurement system is comprised of a cavity ring-down spectrometer (Picarro G2508), an infrared gas analyzer (LI-COR; LI-8100A), a multiplexer/manifold (LI-COR; LI-8150), and 16 automated soil chambers (LI-COR, LI-8100-104). Together, these components comprise one instrument that sequentially measures fluxes of GHGs from the soil *in situ*. The 16 automated soil chambers allow for replicate flux measurements to capture spatial variation between the CS plot and the control. Within a field/farm, eight chambers will be in the plots with the CS practice, and the other eight would capture the GHG emissions from control plots.

While the LI-COR components control the automatic chambers and gas flows to the analyzers, the Picarro G2508 Cavity Ring-Down Spectrometer measures CO_2, CH_4, N_2O, NH_3 and H_2O at precisions of parts per billion every 8 seconds (Fleck et al., 2013). The automated, multiplexed measurements can capture fluxes with greater temporal resolution and accuracy than traditional techniques that require "snapshots" of fluxes in the field (Pihlatie et al., 2013).

The combination of the Picarro® and LI-COR® working together as a single instrument system is detailed in a technical report published by LI- COR® Inc (LI-COR, 2018). PIs O'Halloran, Silva, Suseela and Ye are experienced operating a single chamber instrument for stable carbon isotope fluxes of CO_2, CH_4 (Picarro® G2201, LI-8100A, LI-8100-104), and have published extensively on long term CO_2 fluxes across various ecosystems.

Sixteen **beef cattle farms** will be recruited to quantify enteric CH_4 emissions during years 2,3, and 4. Measurements will be conducted on four farms per month during March-April and May, and then repeated on the same farms in June-July-August and Sept-Oct-Nov. On each farm, enteric methane emissions will be measured from cows during one week, after 3 weeks of acclimatization to a portable head chamber gas emission monitoring GEM (GreenFeed; C-Lock Inc., Rapid City, SD). The measuring unit is mounted on a trailer equipped with solar panels for the collection of spot short-term gaseous measurements of CH_4 (Gunter&Beck, 2018). Methane emission intensity (as kg of CO_2-equivalents/hectare) from each farm will be calculated by dividing CH_4 production (g/hectare) by the kgs. of calves per hectare produced each year. SC State University will follow a similar model with 2 GreenFeed units for 8 additional farms.

Gas sampling events will be conducted during the summer and/or winter seasons, depending on the practices adopted. The insertion of bases of chambers will occur prior to initiating data collection and to N fertilization, and they will be placed arbitrarily in each pasture. Each sampling period will immediately follow a defoliation event and be associated with an N fertilization event in the control area. Samples will be taken one day prior to the defoliation/N fertilization date to provide a baseline measure (Day 0) of emissions. Thereafter, sampling will occur within the next 4-wk period with more intensive sampling in the first two weeks to capture the peak of nitrous oxide emissions. Auxiliary soil measurements will also occur.

A baseline for soil pH, nutrient levels, and C and N concentrations and bulk density will be collected to 20-cm depth on every enrolled peanut, leafy green and beef cattle farmfarm. Eight sampling sites will be chosen, and a composite sample will be analyzed. On a subset of farms, undisturbed soil samples will be taken at 0 to 5- and 5- to 20-cm depths using plastic liners to determine changes in C and N concentrations and stocks. Samples will be oven-dried for C concentration and bulk density analyses. For total C and N concentrations, subsamples will be ball-milled and analyzed using a C/N analyzer. Stocks will be calculated and net change determined over time.

Nutrient analysis for the determination of soil nutrient accumulation over time:
A subset of the total number of farms (n=30) will be used for soil sampling to generate soil survey data across the state for organic matter, pH, and nutrient levels for each farm's total period of enrolment. Prior to the adoption of the practices, baseline soil samples will be collected aiming

to determine initial soil conditions to be compared with following sampling events. Samples will be collected for three layers in the 8-in soil profile for 30% of the subset farms aiming to provide more detailed information on the nutrient accumulation happening under those forage systems after adopting practices.

Forage analysis:
Forage samples will be collected through the plant growing season in a subset of farms, including those listed as collaborators under the measurements group. For the nutritive value analysis, the following will be determined: fiber fractions, crude protein, ash, and minerals concentrations. This information is essential to determine the quality of the forage the animals are consuming, especially those where the GreenFed equipment will be capturing methane emissions data.

Additionally, plant tissue samples will be collected from fields during the growing season to determine nutrient concentration in order to address fertilization needs within each growing season. Legumes rely heavily on some micronutrients to grow and accumulate forage mass, and their lack of availability may reduce yields drastically. Therefore, it is part of the management plan to conduct routine sampling within the season to ensure plant levels are within the proper range.

The forage samples collected for nutritive value analysis will also be used to determine in-vitro methane production. As mentioned previously, the GreenFeed equipment will be collecting in-vivo methane emission samples. The values obtained from in-vitro analysis will allow us to establish a correlation between predicted values and in-vivo which contributes to a better understanding of this process and has high relevance due to the fact that most estimates are currently just estimated in-vitro.

B. Monitoring of practice implementation, including the anticipated number of farms and acres.
The implementation team will monitor and keep track of farmers and acreage with adopted CS practices. We anticipate a minimum of 510 farms (assuming farms enroll the maximum acreage) across the project in the five years and a minimum of almost 200,000 acres (assuming that the multiple practices are implemented in the same acreage). In other words, it is likely that we will enroll a diversity of farm sizes for a much higher number of enrollees. It is also likely that some farmers will choose only certain practices, resulting in a higher acreage impacted. Details of the farmers paid through Clemson for agricultural CS practices are shown in Table 3. The protocols for implementation of CS practices and for measurement of GHG benefits will be identical for Clemson and South Carolina State University.

C. Approach to reporting and tracking of GHG benefits including the anticipated GHG benefits
We will use COMET Planner, COMET-Farm and on-farm measurements to track the GHG inventory as a function of the CS practices. We will establish a baseline period for tracking of emissions over time. The base period inventory will be captured at the beginning of the project accounting for any significant land-use changes in the preceding five years. We will use multi-year base periods with at least three years, as recommended by the IPCC. We will then adopt a rolling base by moving the base period forward with each reporting period to smoothen the

changes in temperature and precipitation. In the absence of actual data on land-use change, proxy data will be used. Base period inventory will be recalculated when changes surpass a certain recommended threshold, which will be applied consistently over time.

The project will capture the GHG emission as CO_2 equivalent from participating farms using COMET-Farm. Farmer registration in COMET-Farm will be encouraged during the project initiation, and yearly training will be provided to familiarize farmers with data input. However, growers will not receive specific payment for signing up. The system is part of the support needed to participate in the pilot project. Dedicated staff will assist with data entry. In the initial year, based on the land-use pattern from the past five years and on the new practices, the GHG benefits will be captured as CO_2 equivalence. The estimates will be corrected every year based on any changes in management practices.

The following data will be reported from on-farm measurements (10% of farms): i) emission and absorption of GHG in terms of CO_2 equivalence from mineral soils, ii) emission and absorption of GHG in terms of CO_2 equivalence from belowground biomass, and iii) any CO_2 emissions from the current cultivation practices (*e.g.,* biomass combustion). The data of three GHG (CO_2, N_2O, CH_4) will be reported in CO_2 equivalent to metric tons. The CO_2 fluxes that are captured by the dynamic chambers from the above stocks will be converted to CO_2 emission rates per acreage per farm. We will use the diurnal measurement to calculate the cumulative CO2 emission per year which would be calculated per farm per year. In addition to the baseline data, the GHG fluxes from the implemented CS practices will also be measured against the GHG emission from the adjacent control plots. The annual estimate of the difference in GHG in terms of eCO_2 will then be used to calculate the GHG emission reduction per farm per year. Co-PIs O'Halloran, Silva, Suseela, and Ye have published these methods for various ecosystems. Since our methods directly estimate the amount of C stocks and GHG fluxes under the crop production system within the reporting period, amortization is not needed.

To capture long-term GHG benefits from forestry and soil pools, amortization will be based on a linear rate approach, where the total computed flux will be divided by the total number of years to obtain a yearly quotient. The amortization period for woody vegetation will be based on the harvest cycle, whereas for mineral and organic carbon stocks we will assume a period of 20 years. We will follow the best practice for reporting the GHG fluxes, which includes description of calculation methodologies, scope-1 emission disaggregated by sources, detailed net fluxes of CO_2 emission data from soils, and belowground biomass, including those resulting from land-use changes, reduction of GHG fluxes separated into predefined categories (*e.g.,* biogenic carbon), description of amortization, any proxy data used in estimating land-use change, size of carbon stock, CO_2 flux data separated by the source of carbon stock (biomass vs soil), detailed description of management practices, recalculation triggers, and any uncertainty in the flux data of GHG. The yearly GHG data will be presented as a COMET report. Processed data from on-farm measurements will be stored in a centralized repository and searchable by farmer information, CS practice, location and commodity.

D. Approach to verification of greenhouse gas benefits

Verification will focus on identifying GHG assessment boundaries, reviewing protocols used to quantify GHG emissions, and confirming the estimation and projection of GHG benefits. A third-party verification service will be contracted with a consultant with expertise in third party verification and validation for agricultural and forestry services. They will review the GHG assessment boundaries of the participating farms and CS practices implemented. Full inclusion of GHGs sources, sinks, and reservoirs will be reviewed to ensure that a baseline is well established. The verifiers will review the sampling protocols, including tools, depths, transportation, storage, and laboratory procedures. Field site visits will be carried out to check whether the systems on the ground match those used to generate the data. During site visits, demonstrations of data and sample collection will be requested. Raw data from at least 5% of the total will be selected to recalculate GHGs emission budgets and projection, which will be used to check the GHG benefits reported by team partners.

E. Agreement to participate in the Partnerships Network

Our Lead Project Administrator will be designated as a member of the "USDA Partnerships for Climate-Smart Commodities Learning Network" and will attend the required meetings.

iv. Plan to develop and expand markets

The market plan will be directed by Dr. Anastasia Thayer (agricultural) and Dr. Marzieh Motallebi (forestry). A Market Coordinator will assist them with market development activities.

We aim to increase the supply and demand for CSC through improving the understanding of the marketability of CS attributes and economic feasibility of CS practices. The plan to develop and expand markets focuses on studying relevant aspects of consumer markets, participating and non-participating producers, the food and restaurant industry, and the timber and lumber industry. The plan involves advanced economic analysis techniques to estimate economic and environmental benefits and to assess potential long-term viability.

The agricultural markets team efforts are concentrated into three subgroupings of activities and expertise. A producer team coordinated by Drs. Thayer and Smith and supported by a post-doc and two master's students. A consumer team coordinated by Drs. Silva and Vassalos and include a post-doc and two master's students. A regional analysis team coordinated by Drs. Thayer and Silva will include a post-doc. Dr. Motallebi will lead the forestry markets team which will also include a post-doc and PhD student. Activities will be coordinated across teams to support climate-smart agriculture through seeking to understand consumer preferences and market potential for climate-smart agricultural products while simultaneously aiming to reduce risk of adoption, quantifying the costs and benefits of climate-smart agricultural practices for agricultural producers, and support adoption for a range of farm types, sizes, and locations.

The producer team efforts will complete the following activities:

1) Survey Producers Enrolled in the incentive program
2) Survey Producers in the Southeast Region on Commodity-Specific topics
3) Build Enterprise Budgets

4) Build a Risk Index
5) Create and Disseminate Economic and Market Outreach Material

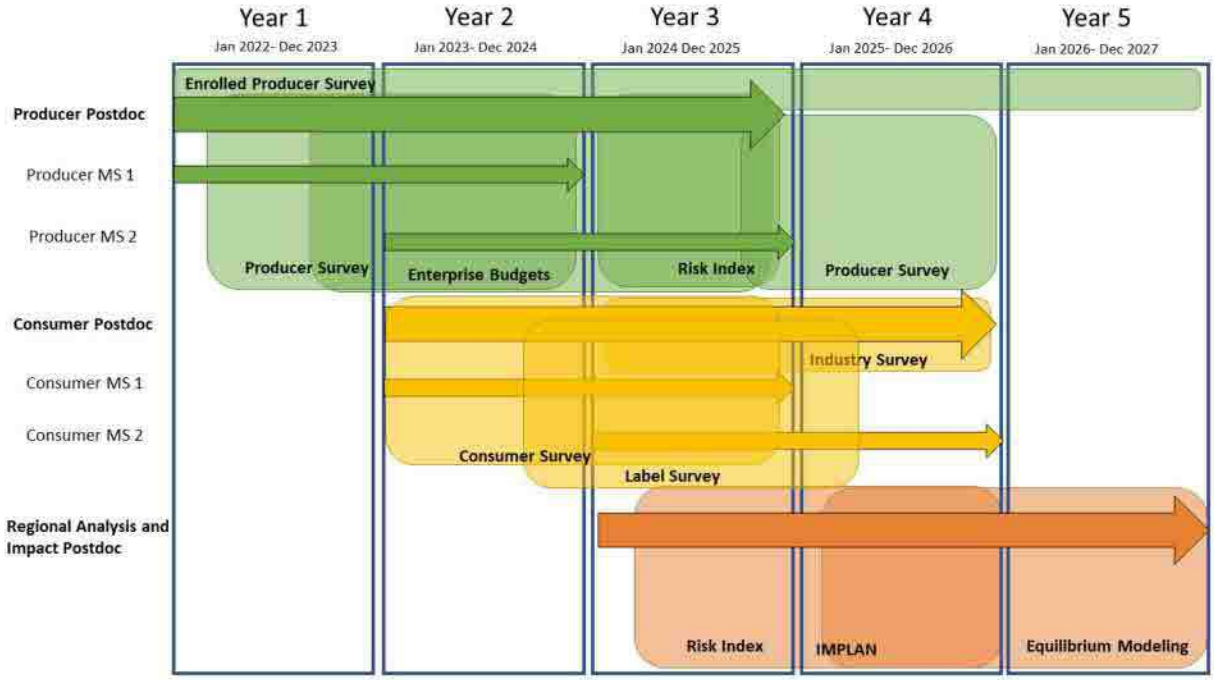
The consumer team efforts will focus on the following activities:

1) Survey Consumers of the commodities (leaf greens, peanuts, beef)
2) Survey Restaurants and other Industry agents
3) Test Label designs through consumer surveys
4) Create and Disseminate Economic and Market Outreach Material

The regional analysis impact team will devote time to the following activities:

1) Analyze Regional Economic changes using IMPLAN Modeling and Equilibrium Modeling
2) Create and Disseminate Economic and Market Outreach Material

A general schematic of activities by team and additional team members can be found below.



A. Partnerships designed to market climate-smart commodities

Partnerships identified and fostered through this project will support the marketing of CSC. A mapping and assessment of current and future partnerships will help identify new market opportunities for CSC. Mapping and assessing the supply chain is expected to reduce the risk of market entry and transaction costs. Fostering new market opportunities is necessary to ensure the long-term viability of CSC beyond the project.

Methods employed to map and assess future partnerships will be focus groups and in-person and online **surveys of SC businesses, local and family restaurants, and product (peanuts, leafy**

greens, and cattle) associations to assess potential markets and distribution avenues. Survey efforts will occur in metropolitan centers in the state (Anderson-Greenville-Spartanburg, Columbia, Florence and Charleston) and several smaller cities (Myrtle Beach, Hilton Head, York, Orangeburg, among others). A similar approach will be taken for forest landowners. Focus groups and surveys of landowners, milling operators, and forestry associations will be conducted. The survey will be administered in years 2 to 4.

To forge meaningful **partnerships that will help expand the market**, we will work with the South Carolina Department of Agriculture, the South Carolina Farmers' Market Association, product boards, SC Forestry Association, The Center for Heirs' Property Preservation, SC Women Owning Woodlands, Society of American Foresters, Southern Reginal Extension Forestry, and others to reach producers and attract public attention and potential consumers.

B. Plan to track CS commodities through the supply chain

This project proposes to **create a label and certification process** for CSC that will allow companies downstream (packaging facilities, grocery stores, etc.) to also include labels indicating the use of CS practices in commodity production. The certification and labeling process will require understanding of the production process and marketing strategy for each commodity. Understanding the challenges and opportunities present with each commodity will be useful as CSC expand to other products and markets. Best practices and findings from this effort will be useful for future USDA efforts to encourage CSC.

The labeling and certification process will be designed to test the marketability and potential market share for a new label in the existing labeling environment. We are proposing a CS certification based on Clemson University's expertise in certifying organic products. The use of a CS label and certification protocol will be a way to track the CSC through the supply chains.

For agricultural products, the certification and labeling process will focus on identifying **three different labels** to communicate CS production practices to consumers. The label will identify various levels of CS adoption corresponding to specific practices. While consistent labeling will be used across all commodities, the preferences of consumers for the CS label are expected to vary across commodities. Consumer surveys will determine possible price premiums by product. The expansion of the market and labeling success depends on the preference of the respondents and successful development of the CS product.

For forest products, the traceability of CS commodities will be through the supply chain using blockchain technology. A set of information is placed together to form a "block", and this procedure is repeated and stacked to form a "chain" of information blocks. The blockchain creates a ledger-like sequence of immutable information. Due to its decentralized characteristics, the technology has been proven to be secure and makes it ideal for traceability. We intend to employ blockchain technology to trace CS forest commodities in partnership with the US Endowment for Forestry and Communities.

The US Endowment for Forestry and Communities owns *ForesTrust*, a hyperledger using blockchain technology that has been shown through a Proof of Concept with the forest products industry to prove origin. All relevant information related to the participating

landowners will be recorded through a monitoring and reporting process (section ii). This includes the CS practices implemented and the GHG benefits measured, which mills the forest product is transported to and processed by, and other aspects of the supply chain that are relevant to forest products, such as ecological benefits from the implemented practices.

C. Estimated economic benefits for participating producers including market returns

An assessment of the potential market returns from adopting CS practices relies on a thorough understanding of producer barriers and motivations for entry, producer profitability, consumer behavior, and the expected premiums from CS products. The market analysis will include estimates of the economic impact the CS practices, the economic value of environmental benefits, and the regional scalability and permanence of practices. A survey will be distributed to forest landowners and farmers to understand current CS practices used and the barriers and motivations for adoption. The producer survey will be deployed in Years 2 and 4.

The producer survey will seek to identify: producers' knowledge of CS practices, current barriers and potential challenges to adoption, potential areas for Extension and research to support adoption, producers' willingness to adopt CS practices (openness to financial incentives, labeling, verification requirements, etc.), availability of current and potential future market channels, and potential future scalability and persistence of practices. It is expected that the producer survey will be distributed through Qualtrics in Year 2 and 4 with a sample size of 300 responses for each of the studied commodities (leafy greens, peanuts, and beef cattle) and 2,000 responses for forest landowners.

To estimate farmer's profitability, **traditional enterprise budget analyses** will be built for each commodity and practice. In addition to static estimates, input cost and price risk will be assessed and modeled based on historic variability. Ideally, location-based or regional-based budgets will be created to improve profitability accuracy. To improve accuracy of the enterprise budgets, we will use Geographic Information System (GIS) tools on weather, soil type and marketing point locations (*e.g.*, groceries stores, farmer's markets, mills). These budgets will be available in Excel workbooks and online at the project website. The website application will allow producers to input their data and get estimates of profitability. Budget input data will be tailored to specific regions and practices based on characteristics of South Carolina.

Market returns will be impacted by consumer preferences and willingness-to-pay for CSC. Seven **consumer surveys** will be distributed (3 for leafy greens, 2 for beef products, 1 for peanuts, and 1 for forestry products) to identify consumer knowledge on climate change and emissions from agriculture, understand purchasing behavior (budget, location, frequency, etc.), and estimate willingness to pay for CS label and attributes. The development of the surveys will start in year 1 and will be distributed through Qualtrics in Years 2 to 4. The target sample is at least 1,000consumers per commodity (leafy greens, beef products, and peanuts) and 3,000 consumers for forestry. It is assumed that consumers will pay a premium for CSC, but it is possible that a price premium does not exist.

A **regional analysis using input-output models** for South Carolina and adjacent states will be conducted to assess the regional economic impact of CSC. A national analysis using regional economic models (i.e., input-output and spatial equilibrium models) accounting for water use

will be used to estimate the economic impact of CS practices. The most recent data will be used from IMPLAN to create a replicable methodology for future use with other CSC and regions.

D. Post-project potential, scalability

The identification of barriers for adoption of CS practices will begin to assess qualitatively if producers will adopt practices after the project. Risk modeling of profitability using the **enterprise budgets** will aim to understand the probability of various future scenarios and market conditions. The information on marketability, price premiums and potential future market opportunities will also inform post-project potential.

To estimate scalability, the **producer survey** will assess the producer's minimum price premium (WTA) that they must receive to adopt CS practices. These minimum price premiums will be compared to the consumer's willingness-to-pay (WTP) for CS products. Ideally, the WTA will be less than WTP leading to increased profits for the producers. These data will be used to estimate adoption of CS practices and related impacts to production and emission reductions.

Scalability of this project and estimation of farm and regional/national environmental benefits from adoption of CS practices in the short, medium, and long-run will be assessed through a formal profit maximization modeling using various weather and price scenarios. Production cost estimates will feed into an economic model over various time horizons to show the potential impact of outside payments for CS practices on profits and environmental outcomes. A **general equilibrium model** will be developed to incorporate GHG emissions endogenously through prices. To account for uncertainty, we will utilize different scenarios for adoption based on the recruitment numbers from this pilot project and the surveys from previous objectives.

To empower farmers to drive CSC markets and improve CS practice adoption, support producers, and develop additional partnerships to foster market development, a conference will be hosted every year and a **risk index** will be created. The conference and risk index will support ongoing efforts to facilitate adoption decisions and reduce barriers to entry. They will also educate producers and other partners and generate feedback on post-project potential.

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MILESTONES - Building Partnerships for Climate-Smart Commodities in South Carolina

Quarter 1 (Q1): January – March
Quarter 2 (Q2): April – June
Quarter 3 (Q3): July – September
Quarter 4 (Q4): October – December

YEAR 1

Year 1/ Q1

Hold kick-off meetings for Clemson and SC State team members, and project partners.

Recruit, hire and onboard key coordinating and Extension personnel.

Initiate recruiting of growers and landowners through coordinated events with partners, including virtual and in-person sessions; and disseminate project information online and at meetings.

Year 1/ Q2

Complete minimum of 4 recruitment meetings for interested participants.

Enroll 50% of Year 1 acres (detailed below). This milestone of 50% of acres will ensure that we are on track to enroll 100% of acres for each practice by the end of Quarter 4. We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size[1]. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 3,700 acres with 19 – 74 producers (9 – 37 underserved)

For peanut/ residue and till management, enroll 3,700 acres with 19 – 74 producers (9 – 37 underserved)

For leafy greens/ cover crops, enroll 212 acres with21 – 85 producers (11 –43 underserved)

For leafy greens/ reduced till, enroll 139 acres with 17 – 55 producers (9 – 28 underserved)

For leafy greens/ mulching, enroll 122 acres with 15 – 49 producers (8 – 24 underserved)

For beef cattle/ legumes, enroll 2,300 acres with 23 – 46 producers (12 – 23 underserved)

For beef cattle/ prescribed grazing, enroll 1,750 acres with 18 – 35 producers (9 – 17 underserved)

For beef cattle/ nutrient management, enroll 1,750 acres with 18 – 35 producers (9 – 17 underserved) For Restoration practices in Forests, enroll 180 acres with 2 – 4 forest landowners (1 – 2 underserved)

For Improvement/Maintenance practices in Forests, enroll 500 acres with 3 – 6 forest landowners (2 – 4 underserved)

Develop enrolled producer survey.

Complete orientation and training of hired personnel.

[1] Estimated number of producers for the halfway milestone is: 50% of the minimum number of farms needed to enroll all acres (low end); and 10% of the maximum number of farms possible for the year (high end). The estimate for underserved producers is 50% of the estimate. The actual number of enrolled producers will depend on the distribution of farm size under each commodity and practice, and we will actively engage farms of all sizes to achieve a diverse and representative cohort each year.

Coordinate with partners and supporting organizations to share information on enrollment with interested farmers and forest landowners, including consultant for Gullah Geechee outreach

Begin continuous user training for COMET Planner and COMET-Farm.

Begin collection of baseline soil data at enrolled peanut, leafy greens and beef cattle farms (pH, nutrient levels, C and N concentrations, and bulk density). (by SC State and Clemson)

Assemble 6 GHG (Greenhouse Gas) EddyFlux towers.

Complete Q2 quarterly financial and performance reports for the project.

Year 1/ Q3

Continue enrollment if target acres have not been met by SC State and Clemson.

Complete minimum of 8 in-person training courses (by SC State and Clemson) for enrolled producers on implementation of practices, COMET Planner and COMET Farm, and institution vendor systems to set up payments. Locations will be at at least 3 demo sites and determined based on distribution of enrolled farmers, practices, and other training needs.

Begin forest landowner outreach and development of a landowner cooperative with the Longleaf Alliance.

Deploy enrolled producer survey.

Begin developing regional producer survey for commodity 1.

Begin developing forestry consumer survey.

Begin developing forestry producer survey by meeting with landowners and other forestry stakeholders.

Begin data collection for blockchain MMRV for forest products. (US Endowment for Forestry and Communities (USEFC))

Begin consultations with 2 traceability and supply chain contractors (*Commodity Supply Chain Consultant* and *Forest Certification Protocol Consultant*).

Begin consultation with *SCSU Market Specialist* to develop commodity markets.

Launch project website for participants, researchers, partners, and the general public.

Track implementation of practices by technicians and Measurement Team to plan for on-site measurements at peanut, leafy greens and beef cattle farms by SC State and Clemson

For peanut/ cover crops, 19 – 74 producers

For peanut/ residue and till management, 19 – 74 producers

For leafy greens/ cover crops, 21 – 85 producers

For leafy greens/ reduced till, 17 – 55 producers

For leafy greens/ mulching, 15 – 49 producers

For beef cattle/ legumes, 23 – 46 producers

For beef cattle/ prescribed grazing, 18 – 35 producers

For beef cattle/ nutrient management, 18 – 35 producers

Continue collection of baseline soil data at enrolled peanut, leafy greens and beef cattle farms (pH, nutrient levels, C and N concentrations, and bulk density). (by SC State and Clemson)

Begin continuous data entry in COMET-Farm. (by SC State and Clemson)

Begin continuous measurements in the field. (by SC State and Clemson)

- Direct measurement of GHG with flux chambers on 10% of the agricultural fields
- 8 Mobile GHG labs each of which include 1 cavity ring-down spectrometer, 1 infrared gas analyzer, 1 multiplexer/manifold, and 32 automated soil flux chambers.
- Peanut, leafy greens, and beef cattle

Begin continuous reporting and tracking of GHG benefits.

Complete Q3 quarterly financial and performance reports for the project.

Year 1/ Q4

Enroll 100% of Year 1 acres (detailed below). We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size[2]. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 7,400 acres with 37 – 148 producers (19 – 74 underserved)

For peanut/ residue and till management, 7,400 acres with 37 – 148 producers (19 – 74 underserved)

For leafy greens/ cover crops, enroll 425 acres with 43 – 170 producers (22 – 85 underserved)

For leafy greens/ reduced till, enroll 277 acres with 35 – 111 producers (18 – 55 underserved)

For leafy greens/ mulching, enroll 245 acres with 30 – 98 producers (15 – 49 underserved)

For beef cattle/ legumes, enroll 4,600 acres with 46 – 92 producers (23 – 46 underserved)

For beef cattle/ prescribed grazing, enroll 3,500 acres with 35 – 70 producers (18– 35 underserved)

For beef cattle/ nutrient management, enroll 3,500 acres with 35 – 70 producers (18– 35 underserved)

For Restoration practices in Forests, enroll 360 acres with 4 – 8 forest landowners (2 – 4 underserved)

For Improvement/Maintenance practices in Forests, enroll 1,000 acres with 6 – 12 forest landowners (3 – 6 underserved)

Verify implementation of practices for 50% of Q2 enrolled acres for peanut, leafy greens, and beef cattle, and initiate payment (by SC State and Clemson). Note that enrolled producers have one year to implement the practice(s), and we expect at least half of Year 1 enrollees will wait until the following spring to implement.

For peanut/ cover crops, verify implementation on 1,150 acres (9 – 37 sites)

[2] Estimated number of producers for the Q4 milestone is the minimum number of farms needed to enroll all acres (low end); and 20% of the maximum number of farms possible for the year (high end). The estimate for underserved producers is 50% of the estimate. The actual number of enrolled producers will depend on the distribution of farm size under each commodity and practice, and we will actively engage farms of all sizes to achieve a diverse and representative cohort each year.

For peanut/ residue and till management, verify implementation on 1,150 acres (9 – 37 sites)

For leafy greens/ cover crops, verify implementation on 106 acres (11 – 43 sites)

For leafy greens/ reduced till, verify implementation on 69 acres (9 – 28 sites)

For leafy greens/ mulching, verify implementation on 61 acres (8 – 24 sites)

For beef cattle/ legumes, verify implementation on 1,150 acres (12 – 23 sites)

For beef cattle/ prescribed grazing, verify implementation on 875 acres (9 – 17 sites)

For beef cattle/ nutrient management, verify implementation on 875 acres (9 – 17 sites)

Monitor implementation of forest practices, and verify implementation and initiate payment on a rolling basis. Note that we plan to enroll 100% of forest acres by the end of Q4 but the timeline for forest implementation will vary based on practice(s) and property.

Analyze enrolled producer survey results.

Finish developing regional producer survey for commodity 1.

Begin developing regional producer survey for commodity 2.

Finish developing forestry consumer survey.

Continue developing forestry producer survey.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Develop test labels and marketplace integration strategy options for labelling.

Complete collection of baseline soil data at enrolled peanut, leafy and beef cattle farms (by SC State and Clemson).

Begin field measurements of ecosystem service benefits on forest sites.

Third-party verification of GHG benefits measurement at 8 sites

Calculate cumulative CO2 emissions and GHG emission reduction (Both per farm per year).

Complete Q4 and Year 1 financial and performance reports for the project.

Provide access to platforms on the Sustainable U.S. Peanut Initiative from contractor to enrolled peanut operations.

Complete 10 videos of project-related activities.

Identify landowners for 7 cluster sales and initiate harvest and sale process with participating timber buyer and cluster coordinator (consulting forester).

Create, print and distribute 2 educational publications.

Purchase and distribute cover crop seeds to underserved farms (SC State).

Complete project logo and design deck.

Hold annual meeting and project review with steering committee, partners, and participants.

Assess education and communication, revise as needed.

Participate in the Partnership Network.

YEAR 2

Year 2/ Q1

Complete minimum of 4 recruitment meetings for interested participants.

Coordinate with partners and supporting organizations to share information on enrollment for Year 2 with interested farmers and forest landowners, including consultant for Gullah Geechee outreach and Longleaf Alliance.

Enroll 50% of Year 2 acres (detailed below). This milestone of 50% of acres will ensure that we are on track to enroll 100% of acres for each practice by the end of Quarter 4. We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 4,000 acres with 20 – 80 producers (10 – 40 underserved)

For peanut/ residue and till management, enroll 4,000 acres with 20 – 80 producers (10 – 40 underserved)

For leafy greens/ cover crops, enroll 238 acres with 24 – 95 producers (12 –48 underserved)

For leafy greens/ reduced till, enroll 155 acres with 19 – 62 producers (10 – 31 underserved)

For leafy greens/ mulching, enroll 143 acres with 18 – 57 producers (9 – 28 underserved)

For beef cattle/ legumes, enroll 2,350 acres with 24 – 47 producers (12 – 24 underserved)

For beef cattle/ prescribed grazing, enroll 1,800 acres with 18 – 36 producers (9 – 18 underserved)

For beef cattle/ nutrient management, enroll 1,800 acres with 18 – 36 producers (9 – 18 underserved)

For Restoration practices in Forests, enroll 180 acres with 2 – 4 forest landowners (1 – 2 underserved)

For Improvement/Maintenance practices in Forests, enroll 500 acres with 3 – 6 forest landowners (2 – 4 underserved)

Continue forest landowner outreach and development of a landowner cooperative with the Longleaf Alliance.

Begin collection baseline soil data at any newly enrolled peanut, leafy greens and beef cattle farms (pH, nutrient levels, C and N concentrations, and bulk density). (by SC State and Clemson) Note: Baseline soil samples are only taken in the first year a farm is enrolled.

Develop plan to track CS (Climate Smart) commodities through supply chain.

Deploy regional producer survey for commodity 1 and gather 300 responses.

Finish developing regional producer survey for commodity 2.

Begin developing regional producer survey for commodity 3.

Begin deploying forestry consumer survey with at least 1,500 responses.

Finish developing forestry producer survey.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Continue consultation on traceability and supply chain (*Commodity Supply Chain Consultant* and *Forest Certification Protocol Consultant*).Continue consultation with *SCSU Market Specialist* to develop commodity markets.

Complete Q1 quarterly financial and performance reports for the project.

Year 2/ Q2

Continue enrollment if target acres have not been met (by SC State and Clemson).

Complete minimum of 8 in-person training courses (by SC State and Clemson) for enrolled producers on implementation of practices, COMET Planner and COMET Farm, and institution vendor systems to set up payments. Trainings will be offered at least 3 demo sites, and determined based on distribution of enrolled farmers, practices, and other training needs for Year 2.

Complete a minimum of 2 in-person training courses for enrolled producers on implementation of practices, COMET Planner and COMET Farm, and institution vendor systems to set up payments.

Deploy regional producer survey for commodity 2 and gather 300 responses.

Finish developing regional producer survey for commodity 3.

Begin developing industry surveys for all commodities.

Finish gathering responses for forestry consumer survey with 3,000 cumulative responses.

Begin deploying forestry producer survey with at least 700 responses.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Develop and test survey questions for consumer preferences for labels for integration into the 3 commodity consumer surveys.

Track implementation of practices by technicians and Measurement Team to plan for on-site measurements at peanut, leafy greens and beef cattle farms (by SC State and Clemson)

For peanut/ cover crops, 20 – 80 producers

For peanut/ residue and till management, 20- 80 producers

For leafy greens/ cover crops, 24 – 95 producers

For leafy greens/ reduced till, 19 – 62 producers

For leafy greens/ mulching, 18 – 57 producers

For beef cattle/ legumes, 24 – 47 producers

For beef cattle/ prescribed grazing, 18 – 36 producers

For beef cattle/ nutrient management, 18 – 36 producers

Continue measurements of GHG with soil flux chambers on 10% of sites for peanut, leafy greens, and beef cattle (by SC State and Clemson).

Begin measurements of enteric methane at selected 16 beef cattle sites (by SC State and Clemson).

Begin soil and forage measurements at 30 beef cattle sites (Clemson).

Install the 6 GHG flux towers.

Begin measuring forest ecosystem carbon fluxes and ecological impacts.

Reduce GHG in participating farms (in tonnes, from COMET Planner predicted GHG benefits)[3]

For peanut/ cover crops, reduction of 2,590 CO_2 and 74 N_2O

For peanut/ residue and till management, reduction of 1,110 CO_2 and 62 N_2O

For leafy greens/ cover crops, reduction of 149 CO_2 and 4 N_2O

For leafy greens/ reduced till, reduction of 114 CO_2 and 8 N_2O

For leafy greens/ mulching, reduction of 78 CO_2

For beef cattle/incorporation of legumes, reduction of 2,300 CO_2

For beef cattle/ prescribed grazing, reduction of 140 CO_2 and 92 N_2O

For beef cattle/nutrient management, reduction of 525 CO_2

For Restoration practices in Forests, reduction of 10,800 CO_2

For Improvement/Maintenance practices in Forests, reduction of 30,000 CO_2

Complete Q2 quarterly financial and performance reports for the project.

Create, print and distribute 4 educational publications.

Year 2/ Q3

Continue enrollment if target acres have not been met (by SC State and Clemson).

Verify implementation of practices for 50% of Q1 enrolled acres for peanut, leafy greens, and beef cattle, and initiate payment (by SC State and Clemson).

For peanut/ cover crops, verify implementation on 2,000 acres (10 - 40 sites)

For peanut/ residue and till management, verify implementation on 2,000 acres (10 - 40 sites)

For leafy greens/ cover crops, verify implementation on 119 acres (12-48 sites)

For leafy greens/ reduced till, verify implementation on 78 acres (10-31 sites)

For leafy greens/ mulching, verify implementation on 72 acres (9-28 sites)

For beef cattle/ legumes, verify implementation on 1,175 acres (12 – 24 sites)

For beef cattle/ prescribed grazing, verify implementation on 900 acres (9 – 18 sites)

For beef cattle/ nutrient management, verify implementation on 900 acres (9 – 18 sites)

Complete 1-2 outreach activities with Longleaf Alliance.

Deploy enrolled producer survey for new participants.

Deploy regional producer survey for commodity 3 and gather 300 responses.

Finish developing industry surveys for all commodities.

[3] Assumes practices on all acres in the previous year have been implemented.

Begin developing consumer surveys for commodity 1.

Begin developing enterprise budget for commodity 1.

Begin analyzing forestry consumer survey results.

Begin analyzing consumer perception towards climate-smart forestry products.

Continue deploying forestry producer survey with at least 1,400 cumulative responses.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Continue measurements of GHG with soil flux chambers on 10% of sites for peanut, leafy greens, and beef cattle (by SC State and Clemson).

Continue measurements of ecosystem service benefits on forest sites.

Continue measurements of enteric methane at selected 16 beef cattle sites (by SC State and Clemson).

Continue soil and forage measurements at 30 beef cattle sites (Clemson).

Complete Q3 quarterly financial and performance reports for the project.

Year 2/ Q4

Enroll 100% of Year 2 acres (detailed below). We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 8,000 acres with 40 – 160 producers (20 – 80 underserved)

For peanut/ residue and till management, 8,000 acres with 40 – 160 producers (20 – 80 underserved)

For leafy greens/ cover crops, enroll 475 acres with 48 – 190 producers (24 – 95 underserved)

For leafy greens/ reduced till, enroll 309 acres with 39 – 124 producers (20 – 62 underserved)

For leafy greens/ mulching, enroll 285 acres with 36 – 114 producers (18 – 57 underserved)

For beef cattle/ legumes, enroll 4,700 acres with 47 – 94 producers (24 – 47 underserved)

For beef cattle/ prescribed grazing, enroll 3,600 acres with 36 – 72 producers (18– 36 underserved)

For beef cattle/ nutrient management, enroll 3,600 acres with 36 – 72 producers (18– 36 underserved)

For Restoration practices in Forests, enroll 360 acres with 4 – 8 forest landowners (2 – 4 underserved)

For Improvement/Maintenance practices in Forests, enroll 1,000 acres with 6 – 12 forest landowners (3 – 6 underserved)

Monitor implementation of forest practices, and verify implementation and initiate payment on a rolling basis (Clemson). Note that we plan to enroll 100% of forest acres by the end of Q4 but the timeline for forest implementation will vary based on practice(s) and property.

Analyze enrolled producer survey results.

Begin analyzing regional producer surveys results.

Begin industry survey deployment for all commodities and gather at least 15 responses.

Continue developing consumer surveys for commodity 1.

Begin developing consumer surveys for commodity 2.

Continue developing enterprise budget for commodity 1.

Finish analyzing consumer perception towards climate-smart forestry products.

Finish deploying forestry producer survey with 2,000 cumulative responses.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Complete collection of baseline soil data at newly enrolled peanut, leafy and beef cattle farms (by SC State and Clemson).

Evaluate producer use of decision tools, COMET Planner and COMET Farm

Third-party verification of GHG benefits measurement at 8 sites.

Continue measurements of enteric methane at selected 16 beef cattle sites (by SC State and Clemson).

Provide access to platforms on the Sustainable U.S. Peanut Initiative from contractor to enrolled peanut operations.

Complete 10 videos of project-related activities.

Identify landowners for 7 cluster sales and initiate harvest and sale process with participating timber buyer and cluster coordinator (consulting forester).

Attend and present at 2 scientific conferences (Research and Extension) to disseminate progress report and final project report and findings/recommendation (SC State).

Purchase and distribute cover crop seeds to underserved farms (SC State).

Complete project logo templates and guidelines.

Complete Q4 quarterly and Year 2 annual financial and performance reports for the project.

Hold annual meeting and project review with steering committee, partners, and participants.

Assess education and communication, revise as needed.

Participate in the Partnership Network.

YEAR 3

Year 3/ Q1

Complete minimum of 4 recruitment meetings for interested participants (by SC State and Clemson).

Coordinate with partners and supporting organizations to share information on enrollment for Year 3 with interested farmers and forest landowners, including consultant for Gullah Geechee outreach and Longleaf Alliance.

Enroll 50% of Year 3 acres (detailed below). This milestone of 50% of acres will ensure that we are on track to enroll 100% of acres for each practice by the end of Quarter 4. We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 4,800 acres with 24 – 96 producers (12 – 48 underserved)

For peanut/ residue and till management, enroll 4,800 acres with 24 – 96 producers (12 – 48 underserved)

For leafy greens/ cover crops, enroll 300 acres with 30 – 120 producers (15 –60 underserved)

For leafy greens/ reduced till, enroll 212 acres with 27 – 85 producers (19 – 43 underserved)

For leafy greens/ mulching, enroll 200 acres with 25 – 80 producers (13 – 40 underserved)

For beef cattle/ legumes, enroll 2,400 acres with 24 – 48 producers (12 – 24 underserved)

For beef cattle/ prescribed grazing, enroll 1,850 acres with 19 – 37 producers (10 – 19 underserved)

For beef cattle/ nutrient management, enroll 1,850 acres with 19 – 37 producers (10 – 19 underserved)

For Restoration practices in Forests, enroll 180 acres with 2 – 4 forest landowners (1 – 2 underserved)

For Improvement/Maintenance practices in Forests, enroll 500 acres with 3 – 6 forest landowners (2 – 4 underserved)

Continue forest landowner outreach and development of a landowner cooperative with the Longleaf Alliance.

Begin collection baseline soil data at any newly enrolled peanut, leafy greens and beef cattle farms (pH, nutrient levels, C and N concentrations, and bulk density). (by SC State and Clemson) Note: Baseline soil samples are only taken in the first year a farm is enrolled.

Continue consultation on traceability and supply chain (*Commodity Supply Chain Consultant* and *Forest Certification Protocol Consultant*). Continue consultation with *SCSU Market Specialist* to develop commodity markets.

Continue analyzing regional producer surveys results.

Continue deploying industry survey for all commodities and gather at least 30 cumulative responses.

Finish developing consumer surveys for commodity 1.

Continue developing consumer surveys for commodity 2.

Finish developing enterprise budget for commodity 1.

Begin developing enterprise budget for commodity 2.

Begin developing risk index for commodity 1.

Begin analyzing consumer willingness-to-pay (WTP) for climate smart forestry products.

Begin analyzing forestry producer survey results.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Continue measuring forest ecosystem carbon fluxes and ecological impacts.

Reduce GHG in participating farms (in tonnes, from COMET Planner predicted GHG benefits)[4]

For peanut/ cover crops, reduction of 2,800 CO_2 and 80 N_2O

For peanut/ residue and till management, reduction of 1,200 CO_2 and 80 N_2O

For leafy greens/ cover crops, reduction of 1662 CO_2 and 5 N_2O

For leafy greens/ reduced till, reduction of 127 CO_2 and 9 N_2O

For leafy greens/ mulching, reduction of 91 CO_2

For beef cattle/incorporation of legumes, reduction of 2,350 CO_2

For beef cattle/ prescribed grazing, reduction of 144 CO_2 and 94 N_2O

For beef cattle/nutrient management, reduction of 540 CO_2

For Restoration practices in Forests, reduction of 10,800 CO_2

For Improvement/Maintenance practices in Forests, reduction of 30,000 CO_2

Complete Q1 quarterly financial and performance reports for the project.

Year 3/ Q2

Continue enrollment if target acres have not been met (by SC State and Clemson).

Complete minimum of 8 in-person training courses (by SC State and Clemson) for enrolled producers on implementation of practices, COMET Planner and COMET Farm, and institution vendor systems to set up payments. Trainings will be offered at least 3 demo sites, and determined based on distribution of enrolled farmers, practices, and other training needs for Year 3.

Continue deploying industry survey for all commodities and gather at least 45 cumulative responses.

Deploy consumer surveys for commodity 1 and gather at least 1,000 responses.

Finish developing consumer surveys for commodity 2.

Begin developing consumer surveys for commodity 3.

Begin distributing enterprise budget for commodity 1 to producers.

Continue developing enterprise budget for commodity 2.

Finish developing risk index for commodity 1.

Finish analyzing consumer WTP for climate-smart forestry products. Finish analyzing forestry producer survey results.

[4] Assumes practices on all acres in the previous year have been implemented.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Track implementation of practices by technicians and Measurement Team to plan for on-site measurements at peanut, leafy greens and beef cattle farms (by SC State and Clemson)

For peanut/ cover crops, 24 – 96 producers

For peanut/ residue and till management, 24 – 96 producers

For leafy greens/ cover crops, 30 – 120 producers

For leafy greens/ reduced till, 27 – 85 producers

For leafy greens/ mulching, 25 – 80 producers

For beef cattle/ legumes, 24 – 48 producers

For beef cattle/ prescribed grazing, 19 – 37 producers

For beef cattle/ nutrient management, 19 – 37 producers

Continue measurements of GHG with soil flux chambers on 10% of sites for peanut, leafy greens, and beef cattle (by SC State and Clemson).

Continue measurements of enteric methane at 16 selected beef cattle sites (by SC State and Clemson).

Complete Q2 quarterly financial and performance reports for the project.

Create, print and distribute 4 educational publications.

Year 3/ Q3

Continue enrollment if target acres have not been met (by SC State and Clemson).

Verify implementation of practices for 50% of Q1 enrolled acres for peanut, leafy greens, and beef cattle, and initiate payment (by SC State and Clemson).

For peanut/ cover crops, verify implementation on 2,400 acres (12 - 48 sites)

For peanut/ residue and till management, verify implementation on 2,400 acres (12 - 48 sites)

For leafy greens/ cover crops, verify implementation on 150 acres (15-60 sites)

For leafy greens/ reduced till, verify implementation on 106 acres (19-43 sites)

For leafy greens/ mulching, verify implementation on 100 acres (13-40 sites)

For beef cattle/ legumes, verify implementation on 1,200 acres (12 – 24 sites)

For beef cattle/ prescribed grazing, verify implementation on 925 acres (10 – 19 sites)

For beef cattle/ nutrient management, verify implementation on 925 acres (10 – 19 sites)

Complete 1-2 outreach activities with Longleaf Alliance.

Deploy enrolled producer survey for new participants.

Continue deploying industry survey for all commodities and gather at least 60 cumulative responses.

Deploy consumer surveys for commodity 2 and gather at least 1,000 responses.

Continue developing consumer surveys for commodity 3.

Finish developing enterprise budget for commodity 2.

Begin developing risk index for commodity 2.

Report consumer results through workshops/webinars/information sheets with forest landowners and forest products industry. Conduct at least 1 workshop based on the results of the forestry producer survey.

Begin analyzing producers' perception towards production of climate-smart forestry products.

Begin developing forestry industry survey by meeting with industry stakeholders.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Continue measurements of GHG with soil flux chambers on 10% of sites for peanut, leafy greens, and beef cattle (by SC State and Clemson).

Continue measurements of enteric methane at 16 selected beef cattle sites (by SC State and Clemson).

Continue soil and forage measurements at 30 beef cattle sites (Clemson).

Complete collection of baseline soil data at newly enrolled peanut, leafy and beef cattle farms (by SC State and Clemson).

Complete Q3 quarterly financial and performance reports for the project.

Year 3/ Q4

Enroll 100% of Year 3 acres (detailed below). We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 9,600 acres with 48 – 192 producers (24– 96 underserved)

For peanut/ residue and till management, 9,600 acres with 48 – 192 producers (24– 96 underserved)

For leafy greens/ cover crops, enroll 600 acres with 60 – 240 producers (30 – 120 underserved)

For leafy greens/ reduced till, enroll 424 acres with 53 – 170 producers (27 – 85 underserved)

For leafy greens/ mulching, enroll 400 acres with 50 – 160 producers (25 – 80 underserved)

For beef cattle/ legumes, enroll 4,800 acres with 48 – 96 producers (24 – 48 underserved)

For beef cattle/ prescribed grazing, enroll 3,700 acres with 37 – 74 producers (19– 36 underserved)

For beef cattle/ nutrient management, enroll 3,700 acres with 37 – 74 producers (19– 36 underserved)

For Restoration practices in Forests, enroll 360 acres with 4 – 8 forest landowners (2 – 4 underserved)

For Improvement/Maintenance practices in Forests, enroll 1,000 acres with 6 – 12 forest landowners (3 – 6 underserved)

Monitor implementation of forest practices, and verify implementation and initiate payment on a rolling basis. Note that we plan to enroll 100% of forest acres by the end of Q4 but the timeline for forest implementation will vary based on practice(s) and property.

Third-party verification of GHG benefits measurement at 8 sites

Complete 1 Climate-Smart Longleaf Academy with Longleaf Alliance.

Analyze enrolled producer survey results.

Continue deploying industry survey for all commodities and gather at least 75 cumulative responses.

Finish developing consumer surveys for commodity 3.

Begin distributing enterprise budget for commodity 2 to producers.

Begin developing enterprise budget for commodity 3.

Finish developing risk index for commodity 2.

Continue analyzing producers' perception towards production of climate-smart forestry products. Begin deploying forestry industry survey with at least 10 responses.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Continue measurements of enteric methane at 16 selected beef cattle sites (by SC State and Clemson).

Provide access to platforms on the Sustainable U.S. Peanut Initiative from contractor to enrolled peanut operations.

Complete 10 videos of project-related activities.

Identify landowners for 7 cluster sales and initiate harvest and sale process with participating timber buyer and cluster coordinator (consulting forester).

Purchase and distribute cover crop seeds to underserved farms (SC State).

Complete guidance on trademark application for project logo and commodity labels.

Complete Q4 quarterly and Year 3 annual financial and performance reports for the project.

Hold annual meeting and project review with steering committee, partners, and participants.

Assess education and communication, revise as needed.

Participate in the Partnership Network.

YEAR 4

Year 4/ Q1

Complete minimum of 4 recruitment meetings for interested participants (by SC State and Clemson).

Coordinate with partners and supporting organizations to share information on enrollment for Year 4 with interested farmers and forest landowners, including consultant for Gullah Geechee outreach and Longleaf Alliance.

Enroll 50% of Year 4 acres (detailed below). This milestone of 50% of acres will ensure that we are on track to enroll 100% of acres for each practice by the end of Quarter 4. We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 5,100 acres with 26 – 102 producers (13 – 51 underserved)

For peanut/ residue and till management, enroll 5,100 acres with 26 – 102 producers (13 – 51 underserved)

For leafy greens/ cover crops, enroll 325 acres with 33 – 130 producers (17 –65 underserved)

For leafy greens/ reduced till, enroll 232 acres with 29 – 93 producers (15 – 47 underserved)

For leafy greens/ mulching, enroll 220 acres with 28 – 88 producers (14 – 44 underserved)

For beef cattle/ legumes, enroll 2,450 acres with 25 – 49 producers (13 – 25 underserved)

For beef cattle/ prescribed grazing, enroll 1,900 acres with 19 – 38 producers (10 – 19 underserved)

For beef cattle/ nutrient management, enroll 1,900 acres with 19 – 38 producers (10 – 19 underserved)

For Restoration practices in Forests, enroll 180 acres with 2 – 4 forest landowners (1 – 2 underserved)

For Improvement/Maintenance practices in Forests, enroll 500 acres with 3 – 6 forest landowners (2 – 4 underserved)

Complete forest landowner outreach and development of a landowner cooperative with the Longleaf Alliance.

Begin collection baseline soil data at any newly enrolled peanut, leafy greens and beef cattle farms (pH, nutrient levels, C and N concentrations, and bulk density) (by SC State and Clemson). Note: Baseline soil samples are only taken in the first year a farm is enrolled.

Redeploy regional producer survey for commodity 1 and gather 300 responses.

Continue deploying industry survey for all commodities and gather at least 90 cumulative responses.

Deploy consumer surveys for commodity 3 and gather at least 1,000 responses.

Continue developing enterprise budgets for commodity 3.

Begin developing risk index for commodity 3.

Finish analyzing producers' perception towards production of climate-smart forestry products.

Begin analyzing producers' willingness-to-accept (WTA) to produce climate-smart forestry products.

Finish deploying forestry industry survey with at least 10 new responses.

Continue data collection for blockchain MMRV for forest products. (USEFC)

Continue consultation on traceability and supply chain (*Commodity Supply Chain Consultant* and *Forest Certification Protocol Consultant*).

Continue consultation with *SCSU Market Specialist* to develop commodity markets.

Continue measuring forest ecosystem carbon fluxes and ecological impacts.

Reduce GHG in participating farms (in tonnes, from COMET Planner predicted GHG benefits)[5]

For peanut/ cover crops, reduction of 3,360 CO_2 and 96 N_2O

For peanut/ residue and till management, reduction of 1,440 CO_2 and 96 N_2O

For leafy greens/ cover crops, reduction of 210 CO_2 and 6 N_2O

For leafy greens/ reduced till, reduction of 174 CO_2 and 13 N_2O

For leafy greens/ mulching, reduction of 128 CO_2

For beef cattle/incorporation of legumes, reduction of 2,400 CO_2

For beef cattle/ prescribed grazing, reduction of 148 CO_2 and 96 N_2O

For beef cattle/nutrient management, reduction of 555 CO_2

For Restoration practices in Forests, reduction of 10,800 CO_2

For Improvement/Maintenance practices in Forests, reduction of 30,000 CO_2

Complete Q1 quarterly financial and performance reports for the project.

Year 4/ Q2

Continue enrollment if target acres have not been met (by SC State and Clemson).

Complete minimum of 8 in-person training courses (by SC State and Clemson) for enrolled producers on implementation of practices, COMET Planner and COMET Farm, and institution vendor systems to set up payments. Trainings will be offered at least 3 demo sites, and determined based on distribution of enrolled farmers, practices, and other training needs for Year 4.

Redeploy regional producer survey for commodity 2 and gather 300 responses.

Finish deploying industry survey for all commodities and gather at least 100 cumulative responses.

Begin analyzing consumer surveys results.

Finish developing enterprise budgets for commodity 3.

Finish developing risk index for commodity 3.

Finish analyzing producers' WTA to produce climate-smart forestry products.

Begin analyzing forestry industry survey results.

Run blockchain analysis for forestry products. (USEFC)

Track implementation of practices by technicians and Measurement Team to plan for on-site measurements at peanut, leafy greens and beef cattle farms (by SC State and Clemson)

For peanut/ cover crops, 26 – 102 producers

For peanut/ residue and till management, 26 – 102 producers

For leafy greens/ cover crops, 33 – 130 producers

For leafy greens/ reduced till, 29 – 93 producers

[5] Assumes practices on all acres in the previous year have been implemented.

For leafy greens/ mulching, 28 – 88 producers

For beef cattle/ legumes, 25 – 49 producers

For beef cattle/ prescribed grazing, 19 – 38 producers

For beef cattle/ nutrient management, 19 – 38 producers

Continue measurements of GHG with soil flux chambers on 10% of sites for peanut, leafy greens, and beef cattle (by SC State and Clemson).

Continue measurements of enteric methane at selected 16 beef cattle sites (by SC State and Clemson).

Complete Q2 quarterly financial and performance reports for the project.

Create, print and distribute 4 educational publications.

Year 4/ Q3

Continue enrollment if target acres have not been met (by SC State and Clemson).

Verify implementation of practices for 50% of Q1 enrolled acres for peanut, leafy greens, and beef cattle, and initiate payment (by SC State and Clemson).

For peanut/ cover crops, verify implementation on 2,550 acres (13 – 51 sites)

For peanut/ residue and till management, verify implementation on 2,550 acres (13 – 51 sites)

For leafy greens/ cover crops, verify implementation on 163 acres (17-65 sites)

For leafy greens/ reduced till, verify implementation on 116 acres (15-47 sites)

For leafy greens/ mulching, verify implementation on 110 acres (14-44 sites)

For beef cattle/ legumes, verify implementation on 1,225 acres (13 – 25 sites)

For beef cattle/ prescribed grazing, verify implementation on 950 acres (10 – 19 sites)

For beef cattle/ nutrient management, verify implementation on 950 acres (10 – 19 sites)

Complete 1-2 outreach activities with Longleaf Alliance.

Continue measurements of GHG with soil flux chambers on 10% of sites for peanut, leafy greens, and beef cattle (by SC State and Clemson).

Continue measurements of enteric methane at selected 16 beef cattle sites (by SC State and Clemson).

Continue soil and forage measurements at 30 beef cattle sites (Clemson).

Complete collection of baseline soil data at newly enrolled peanut, leafy and beef cattle farms (by SC State and Clemson).

Deploy enrolled producer survey for new participants.

Redeploy regional producer survey for commodity 3 and gather 300 responses.

Begin analyzing industry survey results for all commodities.

Continue analyzing consumer surveys results and develop at least 3 label prototypes.

Begin distributing enterprise budget for commodity 3 to producers.

Begin analyzing risk indexes for all commodities.

Finish analyzing forestry industry survey results.

Conduct at least 1 workshop based on the results of the forestry industry survey. Begin analyzing industry perception towards production of climate-smart forestry products.

Run blockchain analysis for forestry products. (USEFC)

Complete Q3 quarterly financial and performance reports for the project.

Year 4/ Q4

Enroll 100% of Year 4 acres (detailed below). We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 10,200 acres with 51 – 204 producers (26– 102 underserved)

For peanut/ residue and till management, enroll 10,200 acres with 51 – 204 producers (26– 102 underserved)

For leafy greens/ cover crops, enroll 650 acres with 65 – 260 producers (33 – 130 underserved)

For leafy greens/ reduced till, enroll 464 acres with 58 – 186 producers (29 – 93 underserved)

For leafy greens/ mulching, enroll 440 acres with 55 – 176 producers (28 – 88 underserved)

For beef cattle/ legumes, enroll 4,900 acres with 49 – 98 producers (25 – 49 underserved)

For beef cattle/ prescribed grazing, enroll 3,800 acres with 38 – 76 producers (19– 38 underserved)

For beef cattle/ nutrient management, enroll 3,800 acres with 38 – 76 producers (19– 38 underserved)

For Restoration practices in Forests, enroll 360 acres with 4 – 8 forest landowners (2 – 4 underserved)

For Improvement/Maintenance practices in Forests, enroll 1,000 acres with 6 – 12 forest landowners (3 – 6 underserved)

Monitor implementation of forest practices, and verify implementation and initiate payment on a rolling basis. Note that we plan to enroll 100% of forest acres by the end of Q4 but the timeline for forest implementation will vary based on practice(s) and property.

Third-party verification of GHG benefits measurement at 8 sites

Continue measurements of enteric methane at selected 16 beef cattle sites (by SC State and Clemson).

Complete 1 Climate-Smart Longleaf Academy with Longleaf Alliance.

Analyze enrolled producer survey results.

Begin analyzing regional producer surveys results for all commodities.

Continue analyzing industry survey results for all commodities.

Finish analyzing consumer survey results.

Develop style and usage guide for labels.

Begin distributing risk indexes for all commodities to producers.

Continue analyzing industry perception towards production of climate-smart forestry products.

Run blockchain analysis for forestry products. (USEFC)

Begin using IMPLAN software and analyzing regional impact data.

Complete 10 videos of project-related activities.

Identify landowners for 7 cluster sales and initiate harvest and sale process with participating timber buyer and cluster coordinator (consulting forester).

Attend and present at 2 scientific conferences (Research and Extension) to disseminate progress report and final project report and findings/recommendation (SC State).

Purchase and distribute cover crop seeds to underserved farms (SC State).

Provide access to platforms on the Sustainable U.S. Peanut Initiative from contractor to enrolled peanut operations.

Complete Q4 quarterly and Year 4 annual financial and performance reports for the project.

Hold annual meeting and project review with steering committee, partners, and participants.

Assess education and communication, revise as needed.

Participate in the Partnership Network.

YEAR 5

Year 5/ Q1

Complete minimum of 4 recruitment meetings for interested participants (by SC State and Clemson)..

Coordinate with partners and supporting organizations to share information on enrollment for Year 5 with interested farmers and forest landowners, including consultant for Gullah Geechee outreach.

Enroll 50% of Year 5 acres (detailed below). This milestone of 50% of acres will ensure that we are on track to enroll 100% of acres for each practice by the end of Quarter 4. We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 5,400 acres with 27 – 108 producers (14 – 54 underserved)

For peanut/ residue and till management, enroll 5,400 acres with 27 – 108 producers (14 – 54 underserved)

For leafy greens/ cover crops, enroll 350 acres with 35 – 140 producers (18 –70 underserved)

For leafy greens/ reduced till, enroll 244 acres with 31 – 98 producers (16 – 49 underserved)

For leafy greens/ mulching, enroll 240 acres with 30 – 96 producers (15 – 48 underserved)

For beef cattle/ legumes, enroll 2,500 acres with 25 – 50 producers (13 – 25 underserved)

For beef cattle/ prescribed grazing, enroll 1,900 acres with 19 – 38 producers (10 – 19 underserved)

For beef cattle/ nutrient management, enroll 1,900 acres with 19 – 38 producers (10 – 19 underserved)

For Restoration practices in Forests, enroll 180 acres with 2 – 4 forest landowners (1 – 2 underserved)

For Improvement/Maintenance practices in Forests, enroll 500 acres with 3 – 6 forest landowners (2 – 4 underserved)

Monitor implementation of forest practices, and verify implementation and initiate payment on a rolling basis. Note that we plan to enroll 100% of forest acres by the end of Q4 but the timeline for forest implementation will vary based on practice(s) and property.

Identify landowners for 7 cluster sales and initiate harvest and sale process with participating timber buyer and cluster coordinator (consulting forester).

Complete collection baseline soil data at any newly enrolled peanut, leafy greens and beef cattle farms (pH, nutrient levels, C and N concentrations, and bulk density). (by SC State and Clemson) Note: Baseline soil samples are only taken in the first year a farm is enrolled. Continue analyzing producer survey results for all commodities.

Finish analyzing industry survey results for all commodities.

Continue using IMPLAN software and analyzing the regional impact data. Finish analyzing industry perception towards production of climate-smart forestry products.

Begin analyzing industry strategies for labeling and marketing the new forestry products through expanded marketing channels and creating new market

Prepare information and fact sheets about the results of blockchain analysis. (USEFC)

Continue consultation on traceability and supply chain (*Commodity Supply Chain Consultant* and *Forest Certification Protocol Consultant*).

Continue measuring forest ecosystem carbon fluxes and ecological impacts.

Reduce GHG in participating farms (in tonnes, from COMET Planner predicted GHG benefits)[6]

For peanut/ cover crops, reduction of 3,570 CO_2 and 102 N_2O

For peanut/ residue and till management, reduction of 1,530 CO_2 and 102 N_2O

For leafy greens/ cover crops, reduction of 228 CO_2 and 7 N_2O

For leafy greens/ reduced till, reduction of 190 CO_2 and 15 N_2O

For leafy greens/ mulching, reduction of 141 CO_2

For beef cattle/incorporation of legumes, reduction of 2,450 CO_2

For beef cattle/ prescribed grazing, reduction of 152 CO_2 and 100 N_2O

For beef cattle/nutrient management, reduction of 570 CO_2

[6] Assumes practices on all acres in the previous year have been implemented.

For Restoration practices in Forests, reduction of 10,800 CO_2

For Improvement/Maintenance practices in Forests, reduction of 30,000 CO_2

Complete Q1 quarterly financial and performance reports for the project.

Year 5/ Q2

Continue enrollment if target acres have not been met (by SC State and Clemson).

Complete minimum of 8 in-person training courses (by SC State and Clemson) for enrolled producers on implementation of practices, COMET Planner and COMET Farm, and institution vendor systems to set up payments. Trainings will be offered at least 3 demo sites, and determined based on distribution of enrolled farmers, practices, and other training needs for Year 5.

Finish analyzing producer survey results for all commodities.

Continue using IMPLAN software and analyzing the regional impact data.

Continue analyzing industry strategies for labeling and marketing the new forestry products through expanded marketing channels and creating new markets.

Track implementation of practices by technicians and Measurement Team to plan for on-site measurements at peanut, leafy greens and beef cattle farms (by SC State and Clemson)

For peanut/ cover crops, 27 – 108 producers

For peanut/ residue and till management, 27 – 108 producers

For leafy greens/ cover crops, 35 – 140 producers

For leafy greens/ reduced till, 31 – 98 producers

For leafy greens/ mulching, 30 – 96 producers

For beef cattle/ legumes, 25 – 50 producers

For beef cattle/ prescribed grazing, 19 – 38 producers

For beef cattle/ nutrient management, 19 – 38 producers

Continue measurements of GHG with soil flux chambers on 10% of sites for peanut, leafy greens, and beef cattle (by SC State and Clemson).

Complete Q2 quarterly financial and performance reports for the project.

Create, print and distribute 4 educational publications.

Year 5/ Q3

Continue enrollment if target acres have not been met (by SC State and Clemson).

Verify implementation of practices for 50% of Q1 enrolled acres for peanut, leafy greens, and beef cattle, and initiate payment (by SC State and Clemson).

For peanut/ cover crops, verify implementation on 2,700 acres (14 – 54 sites)

For peanut/ residue and till management, verify implementation on 2,700 acres (14 – 54 sites)

For leafy greens/ cover crops, verify implementation on 175 acres (18-70 sites)

For leafy greens/ reduced till, verify implementation on 122 acres (16-49 sites)

For leafy greens/ mulching, verify implementation on 120 acres (15-48 sites)

For beef cattle/ legumes, verify implementation on 1,250 acres (13 – 25 sites)

For beef cattle/ prescribed grazing, verify implementation on 950 acres (10 – 19 sites)

For beef cattle/ nutrient management, verify implementation on 950 acres (10 – 19 sites)

Complete 1-2 outreach activities with Longleaf Alliance.

Deploy enrolled producer survey for new participants.

Finish using IMPLAN software and analyzing the regional impact data.

Finish analyzing industry strategies for labeling and marketing the new forestry products through expanded marketing channels and creating new markets.

Collaborate with US Endowment for disseminating the results of the blockchain analysis. (USEFC)

Continue measurements of GHG with soil flux chambers on 10% of sites for peanut, leafy greens, and beef cattle (by SC State and Clemson).

Complete collection of baseline soil data at newly enrolled peanut, leafy and beef cattle farms (by SC State and Clemson).

Complete Q3 quarterly financial and performance reports for the project.

Year 5/ Q4

Enroll 100% of Year 5 acres (detailed below). We provide the estimated range of producers enrolled for each practice, which depends on each producer's plot size. These include enrolled producers working with Clemson and SC State.

For peanut/ cover crops, enroll 10,800 acres with 54 – 216 producers (27– 108 underserved)

For peanut/ residue and till management, enroll 10,800 acres with 54 – 216 producers (27– 108 underserved)

For leafy greens/ cover crops, enroll 700 acres with 70 – 280 producers (35 – 140 underserved)

For leafy greens/ reduced till, enroll 488 acres with 61 – 196 producers (31 – 98 underserved)

For leafy greens/ mulching, enroll 480 acres with 60 – 192 producers (30 – 96 underserved)

For beef cattle/ legumes, enroll 5,000 acres with 50 – 100 producers (25 – 50 underserved)

For beef cattle/ prescribed grazing, enroll 3,800 acres with 38 – 76 producers (19– 38 underserved)

For beef cattle/ nutrient management, enroll 3,800 acres with 38 – 76 producers (19– 38 underserved)

For Restoration practices in Forests, enroll 360 acres with 4 – 8 forest landowners (2 – 4 underserved)

For Improvement/Maintenance practices in Forests, enroll 1,000 acres with 6 – 12 forest landowners (3 – 6 underserved)

Third-party verification of GHG benefits measurement at 8 sites

Verify implementation of practices for 100% of all enrolled acres for peanut, leafy greens, and beef cattle, and initiate payment (by SC State and Clemson).

Verify implementation of practices for 100% of all enrolled acres for forests and initiate payment (by Clemson).

Verify completion of 100% of all cluster coordination sales, and initiate payment to participating timber buyers and coordinators/consulting foresters (Clemson).

Analyze enrolled producer survey results.

Report all results from all surveys across all commodities through briefs. Complete 10 videos of project-related activities.

Provide access to platforms on the Sustainable U.S. Peanut Initiative from contractor to enrolled peanut operations.

Complete Q4 quarterly and Year 5 annual financial and performance reports for the project.

Complete financial and performance reports for the project.

Hold annual meeting and project review with steering committee, partners, and participants.

Participate in the Partnership Network.

Clemson University

Climate-Smart Practices and Limitations

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

NRCS Practice Code	Practice Name
315*	Herbaceous Weed Treatment
329	Residue and Tillage Management – No Till
338*	Prescribed Burning
340	Cover Crop
345	Residue and Tillage Management – Reduced Till
484	Mulching
490*	Tree/Shrub Site Preparation
512	Pasture and Hay Planting
528	Prescribed Grazing
590	Nutrient Management
612	Tree/Shrub Establishment
666	Forest Stand Improvement
E666H	Increase on-site carbon storage
E666S	Facilitating longleaf pine regeneration and establishment

*Supporting practices that will only be incentivized in combination with other climate-smart practices

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

N/A

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

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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."

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.