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:
NR233A750004G054		Date of Final Signature - 05/29/2028	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	TEXAS A M AGRILIFE RESEARCH 400 HARVEY MITCHELL PARKWAY S., SUITE 300 COLLEGE STATION TX 77843-3578 UEI Number / DUNS Number: KU3DCFJJTVN3 / 847205713 EIN:

7. NRCS Program Contact	8. NRCS Administrative Contact	9. Recipient Program Contact	10. Recipient Administrative Contact
Name: ALLISON COSTA	Name: Aileen Anderson	Name: Julie Howe	Name:Amy McMann
(b)(6)			

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

15. Project Title/ Description: Expands climate-smart row crops, livestock, forest product and specialty crop markets in TX and supports farmer, rancher and forest landowner 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	$64,999,967.20	$76,840.00
Additional funds total	$0.00	$0.00
Grand total	$64,999,967.20	$76,840.00

18. Approved Budget

Personnel	$7,499,061.10	Fringe Benefits	$2,561,748.80
Travel	$304,211.47	Equipment	$3,386,569.37
Supplies	$618,444.59	Contractual	$0.00
Construction	$0.00	Other	$50,629,931.87
Total Direct Cost	$61,821,661.20	Total Indirect Cost	$3,178,306.00
		Total Non-Federal Funds	$76,840.00
		Total Federal Funds Awarded	$64,999,967.20
		Total Approved Budget	$65,076,807.20

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: 2023.06.29 06:51:03 +09'00'	Date
Name and Title of Authorized Recipient Representative Cliff Lamb Director	Signature	Date 06/29/2023

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 Texas A&M AgriLife Research (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 $65,076,807.20

TOTAL FEDERAL FUNDS $64,999,967.20
PERSONNEL $5,768,509.00
FRINGE BENEFITS $1,970,576.00
TRAVEL $234,008.82
EQUIPMENT $3,386,569.37
SUPPLIES $475,726.61
CONTRACTUAL $0
CONSTRUCTION $0
OTHER $49,986,271.40 (including PRODUCER INCENTIVES of $38,825,200)
TOTAL DIRECT COSTS $61,821,661.20
INDIRECT COSTS $3,178,306.00

TOTAL NON-FEDERAL FUNDS $76,840
PERSONNEL $0
FRINGE BENEFITS $0
TRAVEL $0
EQUIPMENT $0
SUPPLIES $0
CONTRACTUAL $0
CONSTRUCTION $0
OTHER $76,840
PRODUCER INCENTIVES $0
TOTAL DIRECT COSTS $76,840
INDIRECT COSTS $0

Recipient has an approved Negotiated Indirect Cost Rate Agreement (NICRA) allowing a rate of 30 percent and a base of $10,594,355,33.

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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Texas Climate-Smart Initiative

I: Executive Summary

Texas is the leading CO_2-emitting state in the U.S. **Despite perceptions, Texas wants to go green** to propel the state toward becoming carbon neutral by 2050. Texas A&M AgriLife is proposing the Texas Climate-Smart Initiative, a 5-year multi-commodity pilot project to transition Texas' large agricultural sector to climate-smart agriculture and forestry (CSAF) practices and develop new markets for climate-smart commodities. Target commodities include crops, animal production, and forest. As the premier research and education agency, **Texas A&M AgriLife** is uniquely positioned to advance the USDA's goal of expanding production and markets for climate-smart commodities in the U.S. The agency has 250 county offices serving Texans in all 254 counties in the state, which will play a significant role in our recruiting efforts. Our key partners, the **Texas State Soil and Water Conservation Board** (TSSWCB) oversees 217 Soil and Water Conservation Districts in Texas, **Prairie View A&M University** (PVAMU) manages its own 41-county Extension network, and **University of Texas-Rio Grande Valley** (UTRGV) operates the Center for Sustainable Agriculture and Rural Advancement (SARA). Through decades of service to the agricultural community, these agencies enjoy trusted partnerships with many generations of the state's farmers, ranchers, and forest owners.

The Texas Climate-Smart Initiative team includes key experts in agricultural commodity production, economics, technology, and market development from leading **land grant universities, Hispanic-Serving Institutions, Historically Black Colleges or Universities, and industry**. Our experts will partner with various **non-governmental organizations, state agencies, and commodity groups** to bring climate-smart solutions to Texas farms, grasslands, and forests. The diversity of Texas' climates, soils, and agriculture allows our carefully crafted Texas Climate-Smart Initiative to serve as a model for future climate-smart commodity programs nationwide. Outcomes of this initiative will identify economical and effective CSAF practices, improve efficiency in assessing GHG benefits, and develop **market-based solutions** (e.g., "**Climate Smart**" label) to **promote climate-smart commodities and add end-user value**. By leveraging existing infrastructure, the **proposed model is scalable nationally**.

Contact Information: Dr. Julie A. Howe, julie.howe@ag.tamu.edu, 979-845-3814, Department of Soil and Crop Sciences, 2474 TAMU, College Station, TX 77843-2474

List of Project Partners:

Texas A&M AgriLife – *Hispanic-Serving Institution, Land-Grant Institution*
- Texas A&M AgriLife Research
- Texas A&M AgriLife Extension
- Texas A&M Forest Service
- Texas A&M University College of Agriculture and Life Sciences

Texas Soil and Water Conservation Board (TSSWCB)
Prairie View A&M University (PVAMU) – *Historically Black University, Land-Grant Institution*
University of Texas – Rio Grande Valley (UTRGV) – *Hispanic-Serving Institution*
Tarleton State University (TSU)
BCarbon – *Non-profit* (carbon credit aggregator)
Nori – *Start-up* (carbon credit aggregator)

List of Commodity Collaborators and Other No-cost Collaborators:

Plains Cotton Growers Association	100Ranchers
Texas Wheat Producers Board	Texas Cattle Feeders Association
Texas Corn Producers Board	Texas Association of Dairymen
Texas Sorghum Producers Board	Texas Poultry Federation
Texas Rice Producers Board	Meat and Livestock Australia
U.S. Rice Producers Association	Texas Forestry Association
Texas Organic Farmers & Gardeners Association	Texas Chapter of National Women in Agriculture*
Texas International Produce Association	Global Revive*
Texas Citrus Mutual	Small Producers Initiative*
Texas Pecan Growers Association	American Plant Food
Texas Small Farmers & Ranchers Organization*	*indicates small-scale or underserved producer organization

Compelling Need for the Project: Texas ranks **No. 1 in the number of farms (125 million acres)** and **No. 4 in total cash receipts** (NASS, 2021). However, Texas is also the No. 1 CO_2 emitter in the U.S. In 2019, energy-related CO_2 emissions from Texas reached 683 million metric tons, which is twice the next highest emitter (California) in the U.S. (EIA, 2022). As the U.S. targets net-zero emissions by 2050, Texas is uniquely positioned to advance this national goal by converting its vast acres of agriculture, grasslands, and forests to CSAF practices. The current adoption rate of carbon sequestering practices is poor in Texas. Conservation tillage adoption in Texas is 14.2% compared to the national average of ~40% (CTIC, 2017), and cover cropping is practiced in only ~6% of crop and livestock acres (Baranski et al., 2018).

If conservation and cover cropping practices improve the sustainability of agricultural production, why are farmers not adopting those practices in Texas? Previous studies identified several adoption barriers. The most common are lack of economic return, concern over increased production risks, and incomplete understanding of how to establish CSAF practices (CTIC, 2017). Producers are generally risk-adverse and traditional. This initiative will create a model for adoption that addresses the significant barriers to adoption, quantifies soil organic carbon (SOC) and greenhouse gases (GHG), and develops market-driven incentives for CSAF practices in Texas that can be translated nationally.

Targeted Commodities: The Texas Climate-Smart Initiative will target **five major commodity groups and several minor and emerging commodities**. Major commodities targeted in this pilot project include **row crops (including rice), vegetables, animal production, forests, and orchards**. Row crop production in Texas is dominated by cotton, wheat, sorghum, and corn. Vegetable production is primarily located in the Rio Grande Valley region of Texas. Animal production ranges from grazing operations to feedlot and dairy production. Forests include pine, oak, and other hardwoods. Citrus and pecan are major orchard crops in Texas. We will also target several emerging crops including olives, vineyards, and industrial hemp.

Geographic Focus: Our geographic focus is the entire state of Texas. The diversity of climate zones and soil types in the state, combined with the range of agricultural products represents a variety of climates and agricultural production across the nation. The average annual rainfall ranges from <10 to >46 inches from west to east and the average annual temperature ranges from 50ºF to >75ºF from north to south. Texas has more than 255 distinct soil series. As such, the Texas Climate-Smart Initiative's model will provide benefits on a national scale.

Approach to Minimize Transaction Costs Associated with Project Activities:

Cost-sharing and leveraging funds: If funded, the Texas A&M University System has agreed to

contribute to establish a state-of-the-art *Climate-Smart Agriculture Center of Texas* (location to be determined). It is conveniently located near the Interstate-35 corridor in central Texas and will be used to demonstrate CSAF practices in cattle and row-crop production. Project partner Nori, a start-up carbon credit company, will **complete their entire budgeted tasks as a cost-share to the project**.

Utilizing existing resources*:* Texas A&M AgriLife and partners already have the equipment, facilities, and expertise to implement, monitor, and evaluate adoption of climate-smart practices. Examples include using eddy covariance towers to monitor CO_2 fluxes from crop fields; using existing tractor- and truck-mounted Giddings soil sampling probes; leveraging the Texas A&M Soil Characterization Lab to process collected samples from across the state to measure SOC and GHGs; and utilizing facilities, vehicles, trailers, and equipment at Research and Extension Centers around the state to house project personnel and conduct project activities. The actual time invested by faculty leading proposed activities will surpass the budgetary request reducing costs. Requested funds for resources will increase capacity where needed.

Approach to Reduce Producer Barriers to Adopting CSAF Practices:

To address concerns that adoption will negatively affect profit and increase enterprise risk, incentive payments were established with Environmental Quality Incentives Program (EQIP) rates as a baseline for CSAF practices that are expected to deliver the most significant increase in SOC storage and reduction in GHG emissions. However, incentives were increased if we anticipated adoption to impact producer's profit negatively (see Recruitment).

To address knowledge-gap barriers, we will use the expertise of our network of AgriLife Extension County Agents, Extension Program Specialists, PVAMU Extension personnel, and Soil and Water Conservation Specialists to train and advise our Climate-Smart Planners and Ambassadors. **Climate-Smart Planners**, supervised through TSSWCB and located in each district (**Figure 1**), will develop custom Climate-Smart Management Plans for participants based on their region, commodities produced, and capabilities, while **Climate-Smart Ambassadors**, supervised through Texas A&M AgriLife, PVAMU, and UTRGV, will serve as local liaisons to facilitate the selection and implementation of CSAF practices into regional commodity production systems and collecting samples for Measuring, Monitoring, Reporting, and Verification (MMRV). Ambassadors will be located at regional centers around the state (**Figure 1**) and hired based on their ability to translate their regional and practical expertise to participants. We will develop educational materials and make them freely available to those interested in CSAF practice adoption, regardless of participation in the project. All recruiting, educational, and participation agreements will be delivered in English and Spanish and administered by project partners through various

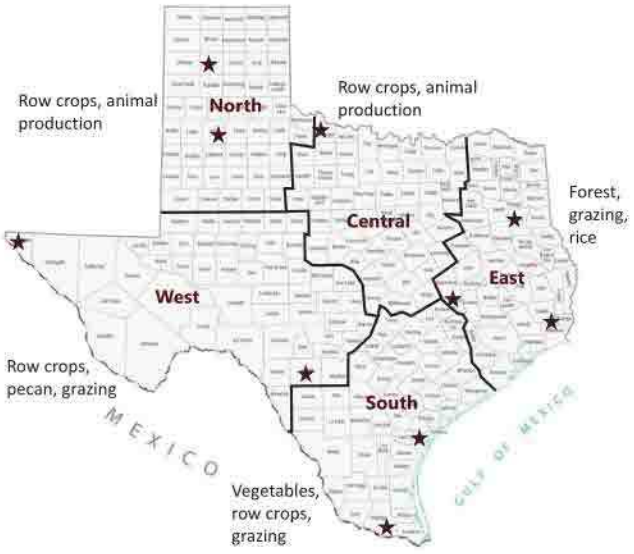


Figure 1. Climate-Smart Planner districts in Texas and primary commodities. Stars indicate regional centers and Climate-Smart Ambassadors.

mechanisms, such as in-person events, printed text materials, online multimedia materials, and press events. In addition, we anticipate that ***access to specialized equipment*** needed for adoption (e.g., reduced-tillage implements and no-till planters) and ***economies of scale*** (e.g., management of small-acreage forest) could be barriers to adoption, particularly for small-scale and underserved producers. To overcome these barriers, we will make equipment available through Ambassadors in regions with underserved participants and use the existing *My Land Management Connector* app developed by the Texas A&M Forest Service to aggregate services for small forest landowners to address for economy-of-scale issues.

Project Management Capacity of Partners:

Texas A&M AgriLife is the largest comprehensive agriculture program in the nation and is home to the following agencies included in this proposal: *Texas A&M University's College of Agriculture and Life Sciences, Texas A&M AgriLife Extension Service, Texas A&M AgriLife Research, and Texas A&M Forest Service*. As a member of the nation's land-grant system, Texas A&M AgriLife has worked for over a century to enrich Texans with comprehensive agricultural and life sciences knowledge and services to restore connections among people, agriculture, food, science, and the economy. Many of Texas A&M AgriLife's activities include on-farm research and demonstration of sustainable and CSAF practices.

Texas A&M AgriLife Research, which had $228 million in research expenditures in 2021, will lead project efforts. Texas A&M AgriLife Extension Service will utilize its extensive network—with an office in nearly every county in Texas—to recruit farm and grassland participants and provide them with educational materials and support for the project. The Texas A&M Forest Service works with property owners to maintain healthy and productive forests and will recruit forest participants and provide *My Land Management Connector* app. Texas A&M University's College of Agriculture and Life Sciences provides academic training and experiential learning through other agencies to prepare the future workforce in agriculture, natural resources, and forestry. Project efforts will include opportunities for experiential learning for graduate and undergraduate studies. We created integrated teams, including Recruitment; Commodity Support; MMRV; and Economics and Marketing, with partners to capitalize on the expertise and capacity of each organization to accomplish project goals.

Texas State Soil and Water Conservation Board administers Texas' soil and water conservation law and coordinates conservation and non-point source water pollution abatement programs throughout the state. The 216 Soil and Water Conservation Districts across the state operate as independent bodies that communicate with state and federal agencies through the TSSWCB. One of TSSWCB's main roles is to develop and certify a Water Quality Management Plan for agricultural lands. TSSWCB will develop a CSAF management plan framework with project partners to deploy the incentive agreement and certification process through each District. The agency already delivers financial incentives to producers and thus are well-equipped and prepared to manage contracts and pay incentives to participating producers. **TSSWCB can also ensure that federal funding received by participants is not duplicated for the same activity.**

Prairie View A&M University (PVAMU), an HBCU and land grant institution, brings its well-organized cooperative Extension Program to the project. The program currently delivers practical, research-based knowledge to small farm producers in 41 Texas counties. This network will expand the Texas Climate-Smart Initiative, providing additional recruitment and technical expertise to additional farmers, ranchers, and forest owners/managers, most of whom are underserved. In addition, PVAMU will conduct economic analyses to determine the economic

impact of CSAF adoption in forest systems to evaluate the scale of market-based incentives needed to sustain adoption. PVAMU team members are also part of the MMRV team.

University of Texas – Rio Grande Valley (UTRGV) is a bilingual HSI located along the U.S.-Mexico border in the Lower Rio Grande Valley (RGV). Through outreach activities and translation of recruitment and educational materials into Spanish, UTRGV will increase the participation of historically underserved producers. The RGV consists of four counties (Starr, Hidalgo, Willacy, and Cameron) with ~5,550 farms. In three of these counties, farms almost exclusively produce vegetables and row crops, while the fourth county is dominated by livestock production. Nearly all farms are small, have farm sales under $50,000, and are operated by Hispanic and/or new or beginning farmers and ranchers. Following successful participant recruitment, UTRGV will continue to serve as liaison to participants by assisting farmers with implementation, sample collection, monitoring, and providing expertise through the Center for Sustainable Agriculture and Rural Advancement (SARA) at UTRGV. CSAF practices will be demonstrated at "RGV One," a model farm serving small-scale farmers in the region.

Tarleton State University (Tarleton) is a member of the Texas A&M University System located in central Texas. Tarleton's expertise in business, agriculture, and natural resources with efforts focusing on marketing and traceability of climate-smart commodities. Their proximity to and economic expertise in large cattle and dairy confined animal operations will allow them to focus on farm-level economic implications of adopting of CSAF practices and the risks associated with them. Tarleton will collaborate with Texas A&M AgriLife to provide supply chain analysis and evaluation to expand or create demand for climate-smart commodities. Team members will create metrics that enhance traceability and tracking of climate benefits through the supply chain and create a value-chain mapping. In addition, 16 different carbon market registries will be evaluated to unify protocols to streamline the process and reduce transaction costs.

BCarbon is a 501(c)(3) non-profit soil carbon sequestration certification organization that verifies measurement-based, scientifically rigorous carbon credits available for sale on the voluntary carbon market. BCarbon will serve three roles in the project: 1) build capacity and develop carbon market educational material, 2) develop carbon market case studies for grazing land or silvopasture sites located in each of the five project regions, and 3) provide feedback to project leaders from the BCarbon stakeholder working group.

Nori is a carbon removal marketplace that rewards early adopters of CSAF practices with the ability to earn carbon credits from their land. Nori estimates soil carbon sequestration using the COMET Farm platform, which provides scientifically backed carbon credits for sale on the marketplace. Nori sees Texas as an ideal location to become involved in the carbon market due to the low adoption of CSAF practices and the potential to sequester additional soil carbon.

II: Texas Climate-Smart Initiative Plan

Recruitment Plan: Participant recruitment will employ a team approach. AgriLife Communications and Marketing will develop project promotional materials (i.e., press releases, flyers, short videos, social media campaigns) and create a project website to generate interest in the project and provide resources for more information. A full-time communications manager will be hired to lead recruitment efforts and maintain strong relationships between project personnel and participants. Team members will also help coordinate a public relations campaign in common forums for Texas agriculture and forestry, such as RFD-TV, Ranch-TV, Farm Bureau podcast, Around Texas with Chancellor John Sharp, and local media outlets. Co-PIs

Legette and Wald, experts in agricultural communications, will lead the strategic recruitment and communications plan for the project to create and curate content using engagement strategies derived from a survey provided to Texas ranchers and producers to identify their content needs and gauge their readiness to adopt CSAF practices. Throughout, UTRGV will extend its recruiting reach through Spanish translation and oral delivery to ensure recruitment of small-scale and underserved producers. Concurrently, project personnel at Texas A&M AgriLife Extension, Texas A&M Forest Service, PVAMU Extension, Soil and Water Conservation Districts, UTRGV's SARA Center, and Tarleton will leverage their extensive county-based presence to engage landowners and managers.

Advertising efforts will direct potential participants to the website and kickoff events (~3 events per region in Year 1-2) hosted by project partners. Events will include speakers and provide flyers focusing on CSAF practices suitable for commodities within the region and information on the Texas Climate-Smart Initiative, including incentives and commitment to the program, monitoring soil and gases, economic analysis, and market opportunities. Interested participants will complete a short online questionnaire about their operation to start the enrollment process. To ensure recruitment of small-scale and underserved producers, recruiting materials will be available in English and Spanish, and events in the South will include Spanish speaking speakers. In some areas, equipment will be available to accomplish project objectives with the Climate-Smart Ambassador to overcome adoption barriers (see Enrollment and Implementation).

Targeted CSAF Practices: Texas is divided into five districts based on climate and agricultural production, which also correspond with TSSWCB's Soil and Water Conservation Districts of Texas. Our expert commodity teams have selected CSAF practices best suited for these regions and commodities (**Figure 1**).

CSAF practices for row crops, vegetables, orchards, and rice: Texas has 22 million acres of cropland with cotton as the primary crop (No. 1 in the U.S. with 6.8 million acres). Other crops include wheat, sorghum, and corn with a wide variety of alternative crops ranging from sunflower to hemp. Vegetable crops represent about 62,000 acres and $305 million in cash receipts with common vegetable crops including melons, cabbage, onions, cucumbers, spinach, cilantro, tomatoes, and peppers. Orchard production primarily includes citrus ($68 million) and pecan (No. 2 in U.S. and $70 million). Rice is produced on nearly 200,000 acres of land in Texas (NAAS, 2021), with an economic value of $300 million.

The majority of crops in Texas, excluding rice, are produced using conventional tillage with fallow periods between crops. Tillage accelerates organic carbon degradation and subsequent CO_2 emission. Without biomass input into soil during fallow periods, organic carbon continues to diminish in our relatively warm climate. In the drier regions and for vegetable production, irrigation management is also a critical component of the cropping enterprise that can be used to manage GHG emission from fertilization. Rice is typically drill-seeded and produced under a shallow flood, which promotes high fertilizer use efficiency, reduces the severity of competing weeds, and results in the highest average yield per acre of all rice-producing countries globally. However, flooded soils create favorable conditions for GHG emissions. Although delayed flooding helps mitigate methane emission, transient water stress must be kept to a minimum to prevent yield loss. Thus, selected CSAF practices (**Table 1**) focus on increasing soil organic carbon through inputs and loss reduction and using management to mitigate GHG emissions.

Table 1. Recommended CSAF practices for row crops, vegetables, and orchards

Commodity Type	Region(s)	CSAF practices
Row crops (excluding rice)	All	Cover cropping
		Reduced tillage and/or residue management
		Fertilizer management, specific to region and commodity
		Addition or repair of treed riparian areas or windbreaks
Vegetables, orchards	South	Cover cropping
		Reduced tillage and/or residue management
		Fertilizer management, specific to region and commodity
		Irrigation management
Rice	East	Alternate wetting and drying irrigation

CSAF practices for forest systems: The southern United States, often referred to as the wood basket of the world, produces 10 to 20% of global roundwood and paper products. Texas is a key contributor of timber and forest products in this region. However, forests and woodlands throughout the state are becoming increasingly fragmented, making them more difficult to manage due to economy of scale issues. In East Texas, for example, forest tracts <50 acres total an estimated 5.1 million acres. Service providers require relatively larger land areas and/or high wood volumes due to slow growth in forest product prices and rising fuel and labor costs. For these reasons, services are often unavailable to small-area forest landowners, and it is expected to worsen as landholdings decline through generational transfers. Without management to enhance forest health, vigor, and resilience, carbon sequestration potential is reduced and the risk of catastrophic loss from increased susceptibility to natural disasters is increased. CSAF practices (**Table 2**) will focus on improving the management of small acreage forests by using *My Land Management Connector* phone app to create economies of scale for small landowners.

Table 2. Recommended CSAF practices for small forest operations

Commodity Type	Region(s)	CSAF practices
Small acreage forest (< 50 acres)	East	Adaptive Silvicultural Planning Practices process
		Small acreage forest management

CSAF practices for animal production (all regions): Texas is a major and leading producer in U.S. animal agriculture, accounting for ~14% of beef cattle and calves, ~13% of dairy cows, ~1.4% of hogs, ~5.6 % of chickens, and ~14% of sheep and lambs (USDA, 2020). Cattle and calves are the No. 1 cash agricultural commodity in Texas, with an annual agricultural receipt of $12 billion in the year 2020 (Tedeschi, 2022). Beef production in Texas includes more than 240,000 declared agricultural operations utilizing 52 million hectares of land (Tedeschi, 2022). The cow-calf operations raise beef calves on pasture or rangeland for 6-10 months, and then the calves are placed on a stocker or backgrounder operation for another 4-6 months, where they graze on grass or other forages. Almost all beef cattle in the U.S. are then finished in feedlots, where they are fed grain-based diets for the last 3-10 months of their life (NASS, 2021). Thus, beef production includes grazing, feed production, and confined animal management.

CSAF practices for grazing and hay/silage production operations focus on improving biomass inputs into the soil for increased soil organic carbon and fertilizer management to reduce GHG emissions (**Table 3**). Manure, which is primarily attributable to confined animal feeding operations (CAFO) in beef and dairy sectors, currently contributes to ~9% of total GHG

emissions, primarily CH_4 and N_2O from the Texas agriculture sector (USEPA, 2020). CSAF practices in confined animal operations include implementing alternative manure management practices to reduce GHG emissions.

Table 3. Recommended CSAF practices for animal production systems.

Commodity Type	Region(s)	CSAF practices
Large confined-animal production	North, Central, East	Manure storage improvement
		Manure treatment including liquid-solid separation
		Manure treatment: alternative manure collection strategy
Small confined-animal production	All	Manure storage improvement
		Manure land application optimization
		Animal diet manipulation
		Integrating grazing into cropping land
Grazing and hay production	All	Stubble-height management
		Cool-season forage overseeding
		Interseeding into warm-season pastures
		Addition or repair of treed riparian areas or windbreaks
Grazing only	All	Strategic stocking method
		Pasture condition scoring
		Bale and swath grazing practices
		Silvopasture
Hay/silage production	All	4-R nutrient management
		Precision fertilizer application
		Harvest frequency
		Perennialization
		Reduced tillage and/or residue management

Financial Incentivization Plan: Incentive payments (**Table 4**) will be provided to producers that agree to adopt CSAF practices on their land. Due to the many commodities, CSAF practices, and logistical constraints associated with each participant, the CSAF practices will be selected by the participant and the Climate-Smart Planner at the enrollment site visit. However, we expect that row crops (excluding rice), grazing, hay/silage, and orchard production will all benefit from similar practices. Based on these characteristics, we anticipate ~$100/acre/year incentives to these producers to cover the cost of seed and potential yield loss from adoption. CSAF practices in rice focus on water management to reduce GHG, which may affect profitability. Thus, we anticipate slightly higher incentives at $320/acre/year. CSAF practices for forest and CAFO are largely labor- and equipment-intensive practices that will be implemented in Year 1 and monitored for benefits in subsequent years. For forest management, upfront management practices will require $15,000 one-time payments for forests ~50 acres in size. Large-scale (i.e., > 4000 cow equivalent) and smaller confined-animal operations (i.e., ~400 cow equivalents) can benefit from CASF manure management practices, such as optimizing land application of manure, changing feed type, and integrating grazing into cropping land. Practices are much more expensive to implement but are likely to provide large returns in reduced GHG.

We will form a Participant Selection Committee to develop an application for enrolling producers. Producers will declare participation in other federal programs in their application. The Selection Committee will prioritize applications through a transparent and objective process that will consider several criteria. Priorities will be given to producers who are not currently receiving federal incentives through similar programs and producers who fall within USDA's

definition of small and/or underserved categories, which include beginning farmers and ranchers, women farmers, limited resource farmers, socially disadvantaged farmers, veteran farmers, and specialty crops farmers. Our team will also communicate with other project teams funded through the climate-smart commodities program to avoid duplication in enrolling.

Texas State Soil and Water Conservation Board (TSSWCB) and AgriLife Research will develop an agreement that specifies the terms and conditions for participation of producers in the Texas Climate Smart Initiative project. TSSWCB will execute the agreement with producers. Once the agreement is signed, producers are expected to implement CSAF practices and adhere to the terms and conditions of the agreement.

Incentive payments will be estimated based on the information presented in **Table 4**. Payments will be distributed by TSSWCB semi-annually except for forest and CAFO owners who will receive a one-time payment after signing the agreement. In addition to incentive payments, participants will also benefit from educational materials and subject matter experts, assistance from Climate-Smart Planners and Ambassadors, access to equipment, free evaluation of carbon sequestration and GHG mitigation, and overall economic evaluation associated with the implementation of CSAF practices on their operations.

Table 4. Estimated scale of project including estimated incentive, targeted number of participants, targeted acres, and total estimated dollars going to each commodity group.

Commodity	Estimated Incentive per acre	Estimated Incentive per participant (4 yr)	Targeted number of participants	Targeted number of acres*	Estimated $ toward incentives
Small acreage forest (<50 acres)	$300	$15,000	550	27,500	$8.25 M
Orchard	$100/yr	$20,000	45	2,250	$0.9 M
Grazing/pasture	$100/yr	$40,000	280	28,000	$11.2 M
Animal waste mgmt					
Large (~4000 head*)	$25*	$100,000	15	60,000	$1.5 M
Small (~400 head*)	$50*	$20,000	3	1,200	$0.06 M
Row crops	$100/yr	$40,000	280	28,000	$11.2 M
Rice	$320/yr	$85,760	20	1,340	$1.715 M
Vegetables	$400/yr	$40,000	100	2,500	$4 M
Total			**1,293**	**152,790**	**$38.825 M**

*Animals are adjusted to acre equivalents by approximating that 1 cow requires approximately 1 acre of land.

Education and Training: Regional commodity teams will be developed to support education and training throughout the state. Team members include project co-PIs from Texas A&M AgriLife, PVAMU, UTRGV, and Tarleton and focus on row crops, animal production, vegetables (including fruit, herb, and nut), and forest. Commodity teams in each region (**Figure 1**) will generate CSAF educational and training content for participants and new project personnel, which will be professionally deployed by the AgriLife Communications and Marketing team and project communication specialist. Regional commodity teams will work together for integrative practices, such as silviculture and integrated grazing into row crops. Educational materials for prospective and enrolling participants will be presented at kickoff events in a live format utilizing expert commodity and CSAF speakers and peer farmers, when

possible. Live events hosted by UTRGV will include presentations led by experts that are native Spanish speakers. We will record presentations and post them on the project website for those who cannot attend. Text-based materials will also be available through Extension and Soil and Water Conservation offices, as well as the project website. To avoid language barriers, all materials will be translated into Spanish by UTRGV. Climate-Smart Ambassadors (11) will be hired and located at regional centers (**Figure 1**) for one-on-one assistance for participants. Ambassadors will also be responsible for collecting samples for the MMRV activities and helping Climate-Smart Planners, if needed.

Database: The project will leverage the existing capacity of the TSSWCB to develop a project database. Project leaders will develop a Management Plan, accessible through a shared database system that can be used for aggregate data analysis (e.g., SOC storage, reduction in GHG emissions, economic assessment of CSAF practices). We will clone the existing Water Quality Management Plan database structure, originally developed by Co-PI Srinivasan, and adapt it to the Climate-Smart Management Plan and project needs. Once the database is deployed, TSSWCB Climate-Smart Planners will work with participants to develop their own Climate-Smart Management Plan with selected CSAF practices and implementation protocols while enrolling them into the program. The TSSWCB will distribute incentives as plans are implemented. Climate-Smart Ambassadors will help with this process as needed; however, their primarily role is to assist with implementing CSAF practices and collecting samples for the MMRV team. Using the TSSWCB's existing locally based organizational structure and Water Quality Management Plan certification process, this model can easily be scaled nationally.

Implementation with Climate-Smart Ambassadors: The project will assign a local Climate-Smart Ambassador to work with the participant. The Ambassador will have the technical skills needed to help implement regional practices. To facilitate participation by small operations and underserved producers, three strip-tillers and two no-till planters are included in the project budget. Equipment will be located in our South and East districts, where the greatest number of small and underserved producers reside. Climate-Smart Ambassadors will bring equipment when needed to assist and train participants.

III: Texas Climate-Smart Initiative Measurement, Monitoring, Reporting, and Verification (MMRV) Plan

The Texas Climate-Smart Initiative's detailed MMRV plan will report the impact of CASF practices on net SOC and GHG emissions. Our plan includes methods to reduce the cost of MMRV, as previous studies found the cost of MMRV prohibitive for carbon markets.

Carbon and GHG Measurement/Quantification:

Soil properties: Each participant's site will be evaluated for SOC stocks and GHG emissions using a combination of direct (soil cores, static chamber, and continuous measurements) and modeling techniques. Climate-Smart Ambassadors will collect soil samples at the beginning and end of CASF practice implementation period. Data will be compared to baselines and model-based estimates to calculate net GHG emission reductions.

Our target is to enroll and sample all of the land-based commodities (i.e., forest, orchard, grazing/pasture, and all crops), which is ~1285 participants (**Table 5**). Soil sampling will be done on 15- or 25-acre grids at 0-15 and 15-30 cm depths. Soil sampling will provide baseline soil characterization (pH, electrical conductivity (EC), soil texture, and aggregate stability in the 0-15 cm depth) and pre- and post-CSAF practice implementation for soil organic carbon (SOC) and total nitrogen (TN) at 0-15 and 15-30 cm depths. Soil samples will be collected with a hand

probe. Texas A&M Forest Service (TFS) will conduct soil sampling of forest sites. Analyses (pH, EC, texture, aggregate stability, SOC, and TN) will be performed in the TAMU Soil Characterization lab using NRCS approved methods. In addition, we will measure SOC in the full soil profile (i.e., 0-15, 15-30, 30-60, and 60-90 cm) for 20% of participants pre- and post-implementation of CASF practices for more detailed measurements. Full profile soil sampling will be conducted using Giddings probes with three replications on 15- or 25- acre grid size, which will be composited by depth for analysis. Estimates of samples are based on expected number of participants, expected acreage per participant that will be enrolled, sample collection specifics, and some additional samples from confined animal feeding operations (CAFO) for manure analysis, which is similar to soil (**Table 5**). All soil samples will be evaluated with either Vis-NIR or MIR, which are non-destructive spectroscopic estimates of SOC, for comparison and evaluation of potentially less expensive SOC evaluation techniques. Manure samples from pits, compost piles, and lagoon (inlet and surface) from all participating CAFOs will be analyzed for pH, total solids, volatile solids, organic carbon and TN.

Table 5. Routine soil characterization and soil organic carbon (SOC) sampling

Commodity	Participants	Acres/ participant	Grid size (acres)	Average sampling sites per participant	Routine samples *	Routine SOC samples **	Full SOC samples ***
Forest	550	50	15	3.333	1833	5,867	2,933
Orchard	45	50	15	3.333	150	480	240
Grazing/pasture	280	100	25	4.000	1120	3,584	1,792
Row crops	280	100	25	4.000	1120	3,584	1,792
Rice	20	67	25	2.680	54	172	86
Vegetables	100	25	15	1.667	167	533	267
CAFO manure	18					180	
Total	**1,293**				**4,444**	**14,400**	**7,110**
Per Sample Collection and Analysis Fee					**$41**	**$24**	**$40**

*Routine samples are calculated as Participants x Average sampling sites per participant

**Routine SOC samples are calculated as Participants x 0.80 x Average sampling sites/participant x 2 depths x 2 sampling times (year 1-2 and 4-5)

***Additional SOC samples are calculated as Participants x 0.20 x Average sampling sites/participant x 4 depths x 2 sampling times (year 1-2 and 4-5)

GHG assessment: GHG emissions will be assessed using two approaches 1) discrete sampling and 2) continuous monitoring. Discrete sampling will involve only few time points, but it can be performed on many more sites than continuous monitoring. Continuous monitoring is costly, but it provides more accurate data for assessment of benefits of CSAF practices and modeling of GHG emissions. This also allows us to compare the approaches to evaluate potentially lower cost options for GHG monitoring of sites.

Discrete soil GHG monitoring from select participants will be used to further quantify CSAF practice benefits. The subset is roughly 10% of participants and ranges from 3 to 30 sites per commodity group (**Table 6**). Similar to soil sampling, a 15- or 25- acre grid will be used for sample collection. However, unlike SOC, which changes slowly over time, soil GHG emission varies continually with environmental factors, particularly temperature, soil moisture, SOC, and

TN. Thus, to assess GHG benefits from CASF practices, it requires more replication of measurements and direct comparison under similar conditions to usual practices. Samples will be collected using PVC rings installed at least 24 hours prior to sampling, then capped and sampled at 0, 15, and 30 min using a gas-tight syringe and placed in evacuated vials. Samples will be transferred to the Soil Characterization Lab, which has a new dedicated gas chromatograph for GHG analysis with an autosampler. To evaluate changes over time, samples will be collected four times per year (i.e., spring, summer, fall, and winter) each year of participation (i.e., 4 years).

Table 6. Discrete GHG monitoring

Commodity	Subset of participants	Average sampling sites per participant	Total gas samples per site per collection*	Sampling times per year	Samples per site per year per participant	Total samples**
Forest	30	3.333	60	4	240	28,800
Orchard	5	3.333	60	4	240	4,800
Grazing/pasture	30	4.000	72	4	288	34,560
Row crops	30	4.000	72	4	288	34,560
Rice	3	2.680	48	4	193	2,316
Vegetables	10	1.667	30	4	120	4,800
Total						**109,836**
Per Sample Collection and Analysis Fee						**$5.25**

*Total gas samples per site per collection time are calculated as Average sampling site per participant x 2 (with and without CASF practices) x 3 replications of gas measurements per site x 3 gas samples per measurement

**Total samples are calculated as Samples per site per year per participant x 4 years x Subset of participants

In addition to discrete estimates, we will measure net GHG benefits of representative commodities and practices by setting up state-of-the-art instrumentation in producer fields for continuous monitoring of GHG emissions (CO_2, CH_4 and N_2O). Our project team has scientists who are experts in making these types of measurements from large fields using popular micrometeorological methods, such as eddy covariance and automated chambers (Zapata et al., 2021; Menefee et al., 2020). We will set-up instrumentation to continuously monitor GHG emissions from five major commodities (corn, cotton, pasture, rice, and vegetables). In total, there will be four corn sites, two cotton sites, two pasture sites and two rice sites. Instrumentation in these 10 sites will be managed by the Texas A&M AgriLife Research team. Vegetable sites for monitoring GHG fluxes will be located at the "RGV One," model farm managed by UTRGV team in South Texas. Forested sites will not be included as GHG fluxes are not expected to differ greatly. At each location, we will measure GHG fluxes continuously using a combination of eddy covariance and long-term chamber techniques.

In addition, 18 confined animal feeding operations (CAFOs), including dairy, livestock, poultry, and swine, will be incentivized and monitored for GHG emissions. For these sites (15 large operations and 3 small operations), we will use auto-samplers fitted with trace gas analyzers to collect and analyze gas samples at each site when meteorological and operational conditions are favorable for sensor deployment. The analyzers will be set to measure GHG concentrations above lagoons, near manure piles, and inside barns on all participating farms. In addition,

supplementary sampling points are needed on large farms which will be sampled and monitored by auto-samplers. These auto-samplers with trace gas analyzers will be used to measure emissions from manure storages piles, manure pits, compost piles/windrows, liquid/solid separation equipment, and manure covered feedlots, etc. from large farms. Smart floating chambers will be used for collecting and analyzing gas samples from lagoons, pits, and runoff holding ponds. Auto-samplers will be programmed to collect samples at specified time intervals or flow volume increments to allow us to sample over entire emission events. These instrumented sites will give us an opportunity to monitor emissions continuously and will serve as testbeds for model simulations of net SOC and GHG benefits.

Approach to Monitoring of Practice Implementation: We will monitor CSAF practice implementation through site visits from either the Climate-Smart Planner or Ambassador. Visits will occur at least annually and will likely coincide with CSAF practice adoption assistance or during sampling for carbon or GHGs until cost-reduction methods are in place (see Geotagged photos and Remote-sensing methods). All visits will be documented in our Climate-Smart Management Plan database. We will implement multiple cost-reduction measures to monitor the practice implementation to reduce the cost of MMRV.

***Geotagged photos**:* Our IT team will develop a mobile application for the producer to upload geotagged images of the field and the practices participants are adopting. Participants will have the option to download the mobile application and submit evidence of their CSAF practices. Collecting geotagged photos directly from participants will help reduce the number of field visits, decrease costs, and save time. We will implement a number of strategies, such as image forensics, to ensure the integrity and validity of the submitted images.

Remote-sensing methods: Satellite-based remote sensing provides greater feasibility to monitor land use and crop growth due to its high temporal resolution and spatial coverage capabilities. The adoption of climate-smart practices can be monitored across farms using satellite imagery. Sentinel-2 satellite acquires high spatial and temporal resolution multi-spectral images with 13 bands in the visible, near infrared, and short-wave infrared region of the light spectrum. The images are captured every 10 days with a spatial resolution of 10 m. Thus, we intend to use Sentinel-2 satellite imagery to monitor all land use-based CSAF practices. The location and boundaries of each farm will be geo-tagged, and its corresponding area in the satellite image will be downloaded and processed to obtain spectral indices such as Normalized Difference Vegetation Index (NDVI), Excess Green Index (ExG), Soil Adjusted Vegetation Index (SAVI), and others according to need. Using satellite imagery will improve the efficiency of MMRV.

Approach to Reporting and Tracking of GHG Benefits and Soil Carbon: We will adapt the Texas Best Management Evaluation Tool (TBET; **Figure 2**) program that Co-PI Srinivasan developed for the TSSWCB for reporting and tracking changes to GHG and soil carbon. The new tool, "Climate-Smart Practice Evaluation Tool" (CPET), will be free and

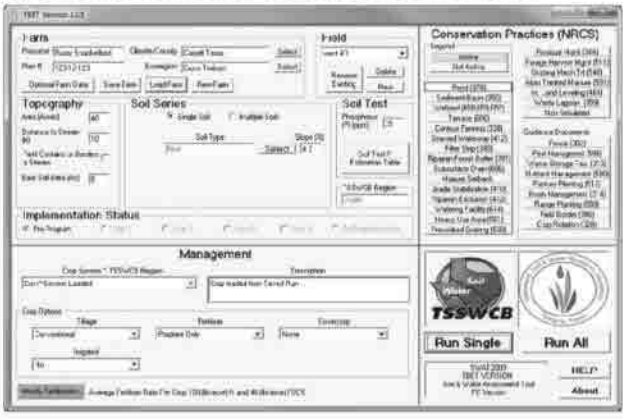


Figure 2. Screenshots of TBET tool that will be adapted in this project (CPET). We will store and share all information pertaining to each field enrolled in the TCI program using CPET.

available to the public so that producers everywhere can benefit. In addition to serving as reporting and tracking database, the CPET program will also translate the information to enter as model inputs and will run COMET or other models for each field. All model outputs, GHG emissions, and SOC data will be saved in the CPET tool.

IV: Texas Climate-Smart Initiative Market Development and Expansion Plan

The Texas Climate-Smart Initiative has developed a comprehensive plan to understand economic and policy factors involved that influence adoption of CSAF practices and to develop and expand markets for commodities using CSAF practices.

Cost-Benefit Analysis of CSAF Practices: Texas A&M AgriLife and PVAMU will evaluate the costs and benefits associated with adopting climate-smart practices at the farm level in row crop systems, vegetable systems, grazing/hay production systems, and forestry systems. Where appropriate, we will develop decision tools for producers to evaluate their choice of engaging in practices to produce climate-smart commodities.

We will capitalize on existing resources, new data generated by participants in the Texas Climate-Smart Initiative, and input from our producer partners to develop crop production functions that incorporate CSAF practices. Texas A&M AgriLife Extension develops regional budgets on an annual basis that represent agricultural systems in twelve separate districts. We will apply data generated to these budget templates to develop budgets that represent the expected outcomes from adopting CSAF practices. The twelve different districts in the Texas A&M AgriLife system represent a variety of environments that include three of USDA's Farm Resource Regions (ERS, 2000). Due to the variety of agriculture in Texas and the environments shared with other states, developing climate-smart production functions working with producers in the state of Texas will allow us to draw conclusions about CSAF practices that apply to, at minimum, 43% of the U.S. agricultural production value.

We will also develop projections of profitability that incorporate production and price risk. Developing forecasts with risk will allow us to present producers with a series of expected profitability outcomes, greatest profitability outcomes, and lowest profitability outcomes from adopting CSAF practices. We can incorporate distributions of carbon storage rates using similar techniques, magnifying the value of data collected through our project participants and industry partners. With carbon measurement serving as a key factor in certain private market payment rates and carbon measurement technology still evolving, the ability to incorporate distributions of carbon storage rates into profitability forecasts will enhance producers' and industry partners' understanding of the entire set of risks and benefits of adopting CSAF practices. In cases where the data allows, we can also develop distributions of production enhancements from the adoption of CSAF practices, such as yield increases over time from improved soil health.

Risk Assessment and Policy Evaluation: Our team will evaluate the macro-level policy and incentive structures necessary to create economically profitable outcomes for producers where conversion from historic production practices to CSAF practices is not profitable on its own. We will work with farmer/rancher partners to collect information on decision tool development, farm management analysis, and policy and incentive program revision.

Implementation of marketing components of the Texas Climate-Smart Initiative: Creating profitable production systems for farmers and ranchers has been a significant barrier to growing the adoption of climate-smart production systems. While federal agricultural programs and private offset markets are currently the model encouraging climate-smart agriculture, an

economically sustainable solution will involve developing marketing chains that compensate producers for the transition to CSAF practices by providing product premiums.

The climate-smart commodity marketing components of the Texas Climate-Smart Initiative project will be implemented under a collaborative effort between project economics and marketing specialists at Texas A&M AgriLife, Tarleton State University, and PVAMU with support from other project partners. The commodity marketing components are part of a broader economic analysis and implementation effort for the project that also includes farm-level cost and return assessments and carbon credit market development.

The three key commodity market development elements included in this project are as follows. A brief outline of how the project team will implement these elements is given below.

A. Climate-smart commodity branding
B. Climate-smart commodity promotion and market development (including brand promotion)
C. Climate-smart commodity supply chain assessment

A. Climate-Smart Commodity Branding

The branding of CSAF commodities is by no means the exclusive responsibility of the Texas Climate-Smart Initiative project. However, since CSAF commodity branding is yet to be well established, the following experimental economic efforts will promote the salience, meaning, consumer response, and resonance that are required for brand establishment. Under the leadership of Co-PI Palma, the following specific steps will be performed to determine consumer response and resonance with selected CSAF products, while creating brand awareness as an ancillary benefit. Leveraging the ability of the TSSWCB to develop certifiable Climate-Smart Management Plans will add value to and generate marketing opportunities for products.

A1: Determine consumer willingness to pay for CSAF products

Using experimental economics techniques, AgriLife agricultural economists will evaluate consumer preferences and willingness to pay for agricultural products grown with climate-smart technology. In-person and online experiments will be conducted to evaluate the main motivations for consumer acceptance and willingness to pay for CSAF products. Different information mechanisms to present the environmental/sustainable benefits of the climate-smart technology will be evaluated for comprehension and acceptance.

The team will implement "incentive compatible" experiments to better understand consumer preferences and their motivations in the lab and online experiments with a sample representative of the U.S. general population in realistic decision-making environments using real money and real products. Incentive compatibility means that the actions and valuations of the respondents carry consequences in a real market setting. This environment is useful to evaluate any consumer reactions and valuations in a more realistic manner which carries stronger external validity. The experiments will present consumers with several agricultural products that will be labeled as 1) climate-smart and 2) conventionally sourced products to compare as benchmark. Having multiple products across different categories will allow us to observe any differences in willingness to pay for different types of agricultural crops. In the online experiments, we will attempt to recruit general population subjects across the US in order to have a wider geographical representation. Participants will be asked to bid on each product. The bids represent the reservation price or the maximum amount of money each participant is willing to pay for each product. This will allow us to construct a demand schedule and observe any differences in

willingness to pay based on different crops and sociodemographic characteristics for the CSAF attributes compared to conventionally produced products. We will employ the BDM bidding mechanism (Becker, DeGroot, and Marschak, 1964). Participants will submit sealed bids for each product. At the end of the experiment, one of the products will be selected to become the market product. For the selected market product, a random price in the range of the corresponding market prices (for example, $0-$10) will be drawn to represent the market price. If the participant bids more than the market price (i.e., the participant is willing to pay the market price), then they will purchase the product and pay the market price from their initial endowment. If the participant's willingness to pay was below the market price, then they will pay nothing and will not receive a product. The auctioned product will be shipped to the participants who became buyers, and the price will be deducted from their participation fee.

By introducing CSAF products to consumers, these experiments will create CSAF awareness. By sharing information about the economic, environmental, social, and other benefits of the CSAF products, these efforts will also elicit enhanced product salience, and the desired consumer response and resonance. Thus, in conjunction with other commodity market development tasks, the experimental economics efforts will provide an avenue for promoting CSAF product attributes.

The consumer willingness to pay studies led by AgriLife agricultural economists will also be supported by PVAMU agricultural economists led by Co-PI. PVAMU will conduct a willingness to pay study focusing on consumer demand for climate-smart livestock products (CSLPs). Given that livestock are the most significant agricultural contributor to GHG emissions from the agriculture sector, it is essential to examine how willing the consumers are to pay for livestock products that are produced using climate-smart technologies, such as CSA feeds and manure management practices. Also, the demand for CSLPs has never been examined. Given CSLPs are new products, this study will examine how consumers will react to such products and their willingness to pay for CLPs. PVAMU agricultural economists will use the Discrete Choice Experiment method to study the willingness to pay for CSLPs. Specifically, the study will estimate the price elasticity of CSLPs relative to conventionally produced livestock products, such as meat products (beef, pork, poultry) and plant-based meat products. We will also examine how much of a premium the consumers are willing to pay for CSLPs products relative to conventional products. We will use a nationwide survey method to collect the data for this study. The outcome of this study will be of interest to the producers, processors, and policymakers, and will also promote brand awareness of CSLPs and CSAF products.

A2: Determine producer adoption

AgriLife agricultural economists will also evaluate producer adoption based on the potential economic gains quantified in the consumer studies and other non-monetary motivations. We will also incorporate economic games to measure the producer's tolerance for risk, and time preferences (i.e., willingness to invest in larger future returns) to use as potential predictors of adoption and the producer's motivation.

B. Climate-smart Commodity Promotion and Market Development

Under the leadership of Co-PI Lovell, Tarleton's agricultural economics team will support efforts of promoting CSAF-branded products and developing and expanding markets for them. The following are the specific complementary market development tasks that Tarleton will perform in support of the project.

B1: Promote climate-smart commodities to agribusinesses

Tarleton agricultural economists will work with major agribusiness processors and suppliers and farmers to promote CSAF commodities. Under this task, Tarleton faculty members and support staff will establish a team of major national agribusiness suppliers and highlight the benefits of CSAF commodities as a potential market opportunity for their retail customers. Major players in the agribusiness food supply chain, such as Sysco, General Mills, Kroger, HEB, and WalMart, among others, will be invited to participate. Tarleton faculty will utilize experimental and other data developed by AgriLife and PVAMU agricultural economists to showcase the financial benefits of selling CSAF produce, meat, and dairy. Tarleton faculty will assemble data on agribusinesses that are receptive to CSA commodities in order to share this data with farmers interested in selling their products.

B2: Promote climate-smart commodities to the general public

Our economics team will develop promotional materials that can be shared with the general public to highlight the benefits of CSAF commodities. Those materials will then be shared in various avenues, including the Texas A&M University System and AgriLife websites, and carefully designed advertisements. Data from AgriLife and PVAMU behavioral experiments will be utilized in promoting these commodities to the general public with assistance from AgriLife Extension.

B3: Develop and expand markets for climate-smart commodities

In the third task addressing commodity promotion and market development, Tarleton faculty and staff will utilize the partnerships established with agribusiness food supply chain participants, AgriLife Extension personnel, and agricultural producers to develop and expand markets for CSAF commodities. To this end, Tarleton will utilize the partnerships to connect CSAF producers and landowners with suppliers and processors who were identified in the first task as interested in CSAF commodities. For this task, as in the previous ones, Tarleton will utilize branding information developed by the AgriLife and PVAMU agricultural economics faculty.

C. Climate-smart Commodity Supply Chain Assessment

A major portion of the proposed effort is supply chain analysis and evaluation, which is a component of the CSA commodity market development objective of the project. The Tarleton team, under the leadership of Co-PI Dinulescu, will work in collaboration with AgriLife and other project collaborators to provide supply chain analysis and evaluation in support of the broader effort. To support the expansion of the supply and demand of CSAF products, the following are the specific supply chain analysis tasks that will be performed by the Tarleton team:

C1: Define a climate-smart commodity supply chain

The Tarleton team will define the boundaries of the CSAF commodity supply chain. This task is critical since climate-smart raw materials would be utilized in the production of a vast array of consumer end-products, many of which entail combinations with raw materials that were not produced using climate-smart practices. We will work with collaborating product marketers and suppliers to determine the appropriate domain of the CSAF commodity supply chain for the commodities included within the scope of the proposed effort.

This first task represents the supply chain discovery phase in which the current mode of operation across the supply chain is identified. The model used is centered around the agribusiness value chain framework, where major industry players, primary value-adding

activities, relationships between players, industry support services, and the supply chain business environment (e.g., competition, consolidation, collaboration opportunities, etc.) will be identified and categorized, from the suppliers of raw materials to retailers. The emphasis will be on the evaluation and segmentation of major players based on shared commonalities, current traceability and capabilities maturity levels, best traceability practices currently in use, and (traceability-relevant) supply chain operations data that can be collected at various interfaces and touchpoints across the value chain. This data collection is essential to the later determination of traceability metrics and the overall evaluation of traceability performance across the supply chain.

The supply chain's current mode of operation represents the baseline to compare against when evaluating traceability performance improvements later on. The later phases will all come together to provide a traceability recommended future mode of operation and a recommended implementation plan to move the industry forward, from the current to the future mode of operation. These will be determined using a combination of domain knowledge, current industry best practices (suitable to across-the-board adoption and standardization), and cross-industries best practices adaptation and adoption. All of these will be evaluated through the lens of the CSAF industry, with Tarleton and other project faculty as facilitators.

To achieve these goals, more mature industries in terms of supply chain traceability capabilities will also be reviewed in this phase. For some industries and/or types of products (e.g., pharmaceuticals, children's products, packaged foods), traceability may be mandated by regulatory bodies. Elements from these industries that can be replicated in the CSAF supply chain will be identified, and (in the later phases) analyzed and integrated into the overall recommendations.

C2: Develop supply chain metrics to enhance the traceability and provenance of climate-smart commodities and ingredients.

In this task, the Tarleton team will work with collaborating suppliers and product marketers to identify and track key supply chain performance indicators in order to improve efficiency and traceability of the climate-smart commodity supply chain. Metrics will also include measures of the life cycle GHG impacts of the climate-smart commodity supply chain versus that of regular commodities. This step is where the analysis of the current mode of operation and the determination of the future mode of operation in terms of traceability, would take place. These will be determined using a combination of domain knowledge, current industry best practices, and cross-industries best practices adaptation and adoption. Traceability performance management requirements are identified as a result, and performance metrics for monitoring and controlling traceability will emerge. These metrics will be developed using a top-down followed by a bottom-up approach. In the top-down step, the traceability management requirements will drive performance monitoring rules that will be further mapped to the “raw data” collection identified in Step 1. The bottom-up step will then establish the raw data collection intervals, the formulas (combination of factors) involved, and the aggregation levels needed to compute and report each metric to various audiences.

These metrics will be identified at the strategic and tactical (operational) levels. These levels may be tiered (e.g., diagnostic vs. performance reporting for the operational level). The metrics will be categorized and grouped in recommended (data visualization) dashboards specifically tailored to various audiences such as the major industry players and stakeholders’ profiles (e.g.,

traceability balanced scorecard). The metrics for the life-cycle GHG will be developed jointly with Co-PI Egelston (Tarleton), the GHG expert on this project.

C3: Develop a protocol for tracking GHG benefits through the CSA commodity supply chain
In conjunction with Tarleton's carbon credit market team and other project partners, we will establish a protocol for determining ownership of GHG benefits through each step in the supply chain. Within the scope of the proposed effort, climate-smart practices are mostly, but not always, implemented at the farm-level or by forestry or range landowners. Consequently, GHG benefits initially accrue to landowners. As climate-smart raw materials are processed into consumer end products, GHG benefits also accrue to subsequent participants within the supply chain through branding and other product marketing mechanisms. In this task, we will work with collaborating companies during the first year of the project to develop a convention for the ownership transfer of GHG benefits. This convention will be documented as part of a protocol for future use by climate-smart commodity marketers. The traceability efforts that will be implemented as part of Task 2 will also help ensure that there is no double counting of GHG benefits as they accrue and are transferred through various components of the CSAF commodity supply chain.

C4: Implementation and evaluation of supply chain traceability systems
In this task, the Tarleton team will work with collaborating partners to implement the convention developed in tasks C2 and C3 to enhance the traceability of climate-smart commodities, as outlined in the protocol. The Tarleton team will also collect supply-chain data for analysis as part of the process of evaluating supply-chain efficiency and traceability, both for the CSAF commodities as well as the associated GHG benefits. Thus, any gaps and opportunities in the CSAF value chain can be identified and acted upon. For example, small and/or historically underserved producers might have specific needs that can be better addressed via cooperation between certain categories of suppliers; or there may be full gaps in the CSAF value chain that should be addressed with priority and recommend solutions for addressing them. Data from the evaluations will be utilized to inform potential revisions in the protocol developed in task C3.

This step is where the recommended implementation plan to move the supply chain from the current mode of operation to the future mode of operation (in terms of traceability) is determined, using a combination of domain knowledge, current industry best practices, and cross-industries best practices adaptation and adoption.

At the core of an effective traceability program implementation are three components:

- Supply chain transparency
- Supply chain traceability process
- Supply chain traceability system

Supply chain transparency assumes manufacturers that are willing to volunteer information on their suppliers to third parties such as customers, trade organizations, TCSI team (as the traceability orchestrator), etc. This may represent a risk to this project if most players are not willing to meaningfully share data and collaborate. However, even in this worst-case scenario, we can put forward a plan on what needs to happen to achieve the required level of transparency.

The supply chain traceability process is the one provided in Steps C2 to C3 above. The Supply chain traceability system is typically an integrated information system hosting a dedicated application where every transaction is recorded to monitor the chain of custody across the supply chain. The identity of trading partners and the continuous assurance that products are authentic, safe, and effective, are thus ensured. One can simplistically view it as a large, centralized

database. The relevant supply chain raw data collected from various players and at various touchpoints is stored, aggregated, and organized here. The system also computes the supply chain traceability metrics identified above and creates and displays these metrics as part of reports or dashboards tailored to various stakeholders (i.e., user profiles). The system also offers a plethora of custom reports and data visualization capabilities, covering raw data, metrics, and dashboards.

An effective traceability system is highly automated, and can process data (e.g., compute metrics, create dashboards and reports) in real-time, or as close to real-time as possible (i.e., near-real-time). The implementation of such a system typically requires high levels of investment and implementation resources from an organization. Within the scope of this project, Tarleton will provide details of the traceability system design as part of the final report. The complete implementation of such a system, however, requires high levels of commitment, investment, and implementation resources from agribusiness collaborators, and is therefore outside the scope of this project.

Carbon-Market Evaluation: Carbon-market aggregators are third-party entities that link sellers (e.g., farmers and ranchers) with carbon credit buyers. We have enlisted two diverse carbon-market aggregators as project partners: BCarbon and Nori. BCarbon is a non-profit organization that focuses on grazing and forested land using more standardized sampling protocols. Nori is a start-up company that focuses more on row cropping agriculture and uses the COMET model. Both aggregators are selecting one site per Texas region to conduct a case-study analysis for their commodity focus. Participants will have the option to enroll, although not required. Each case study will evaluate the potential for CSAF commodities to develop carbon credits in a given production scheme and outlay the process for seeking carbon credits under BCarbon or Nori protocols. Aggregators will work directly with participants enrolled in the Texas Climate-Smart Initiative to evaluate the potential for carbon credits and other quantifiable ecosystem services provided by the adoption of CSAF practices by a commodity. Aggregators will use data collected by the project as needed for their case study or for validation of results. Results will be incorporated into the Cost-Benefit Analysis of CSAF practices.

V. Climate-Smart Benefits and Post-Project Potential

GHG Benefits:

Establishing baseline soil organic carbon (tons C ha^{-1}) and GHG emissions (tons CO_2e ha^{-1} $year^{-1}$) for each region is critical to our climate-smart benefits assessment plan. We will estimate the net SOC and GHG benefits of each participant enrolled in the Texas Climate-Smart Initiative by comparing emissions and SOC accumulation against the baselines. A 'baseline scenario' or 'business-as-usual' is the measurement taken when management for the past 5 years is considered typical for the region with minimal or no use of conservation management practices. As the project includes multiple commodities and various geographic regions of Texas, baseline GHG emissions and carbon stocks will be determined for all commodities of interest and regions. To quantify baseline carbon status, we will first develop a SOC stock database for each region using data from our direct sampling of sites enrolled in the first year of the project (described in MMRV). This data will be used to determine average SOC stocks in each depth increment (tons C ha^{-1}). To quantify GHG emissions of baselines, we will use simulated estimates using the Carbon Management Evaluation Tool (COMET)-Planner/ COMET-Farm. If a particular commodity is not supported in COMET, we will use other cropping systems or biogeochemical models. Model selection will depend on the type of system being evaluated. We

will simulate the pre-monitoring period using historical weather data and procedures outlined in COMET-Planner report (Swan et al., 2020). Modeled estimates will be compared against SOC determined via direct sampling for validating model performance, then adjust the model if the simulated values deviate substantially (high RMSE, low R^2, etc.) from the actual soil organic carbon estimates. After ensuring satisfactory performance, we will use model-simulated SOC and GHG emissions to assess the performance of CSAF practices.

After establishing baselines using COMET or other models described above, we will estimate the net SOC and GHG benefits associated with implementation of CSAF practices during the monitoring period. The information that is supplied during enrollment will be used for modeling CSAF scenarios. To calculate **net CSAF benefits** we will add the change in soil organic carbon stocks (i.e., **Δ soil organic carbon)** due to CSAF implementation to the change in GHG (i.e., **Δ GHG)** in carbon equivalents due to CSAF implementation. In this equation, Δ SOC represents organic carbon stocks with CSAF practices less the organic carbon stocks at baseline, and Δ GHG represents the GHG baseline less the GHG with CSAF practices in carbon equivalents. Δ GHG includes cumulative changes in CO_2, N_2O and CH_4 emissions, which will be converted to carbon equivalents using the IPCC recommended conversion factors, which is 25 for CH_4 (global warming potential of CH_4 relative to CO_2) and 298 for N_2O (global warming potential of CH_4 relative to N_2O).

$$\text{Net CSAF benefit} = \Delta\ \text{SOC} + \Delta\ \text{GHG}$$

$$\Delta\ \text{SOC} = \text{SOC}_{\text{CSAF}} - \text{SOC}_{\text{baseline}}$$

$$\Delta\ \text{GHG} = \text{GHG}_{\text{baseline}} - \text{GHG}_{\text{CSAF}}$$

where SOC is soil organic carbon

For manure, Co-PI Liu will develop the Texas Manure Solutions protocol, which will combine IPCC Tier 2 methodology with assessment of operation-specific manure management practices in Texas. This protocol will reflect the animal commodity, farm size, animal diet and housing, productivity, and manure management practices. This protocol will minimize errors and uncertainty caused by using national average values for estimating GHG reductions from manure management projects. To estimate climate-smart benefits from CAFO, we will use manure characteristics to model GHG emissions using the Texas Manure Solutions protocol. We will also evaluate other existing GHG emission models (CARB/IPCC and DairyGEM). By comparing model estimates with actual GHG emissions measured from farms, we will be able to validate/improve our models that will be later used for quantifying GHG emissions and net CSAF benefits in many more animal production facilities in Texas.

Anticipated Climate-Smart Benefits: We have evidence that adoption of no-till sorghum in the Texas High Plains accumulated 2,500-3,000 kg C ha^{-1} (equivalent to 1321 $MTCO_{2eq}$ stored ha^{-1} y^{-1}). This includes both crop residues and belowground carbon in a single crop-year; however, cover cropping and N management could increase carbon accumulation. Other regions are likely to respond more favorably. We will use this as a worst-case scenario for all systems, except forest and confined-animal operations. In forest, we estimate 4 tonnes C $acre^{-1}$ y^{-1} (equivalent to 9 MT C ha^{-1} y^{-1} or 4757 $MTCO_2eq$ ha^{-1} y^{-1}). And, in confined-animal operations, we estimate 1.636 tonnes C $head^{-1}$ y^{-1} (equivalent to 865 $MTCO_2eq$ $head^{-1}$ y^{-1}) as a minimum, which is based on adoption of climate-smart manure management practices in dairy. Hence, we are confident that large-scale implementation of CSAF practices in Texas could lead to a net GHG benefit equivalent of several million metric tons of carbon accumulation each year.

Table 5. Worst-case scenario benefit of CSAF practices for project and extended to represent benefits if entire state adopted practices (M = millions; MT = metric tonnes)

	Project				State of Texas	
Commodity	**Area**	**Estimated Annual Benefit**	**Estimated 4-year Benefit**	**Project cost**	**Area**	**Estimated Benefit**
	ha or head	MMT CO_{2eq} y^{-1}	MMT CO_{2eq}	\$ MMT CO_{2eq}^{-1}	M ha	MMT CO_{2eq} y^{-1}
Crops and rangeland	25,127	33	133	218,465	61	153
Forest	11,129	53	212	38,958	35.6	320
Confined animals	61,200	53	212	7,369	13	21
TOTAL	**97,457**	**139**	**556**	**264,793**	**109.6**	**494**

* assuming that 1 head of cattle = 1 acre of land converted to ha

Post-Project Potential

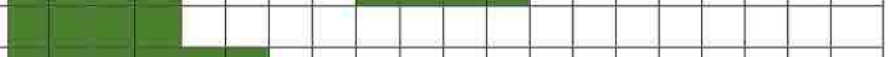
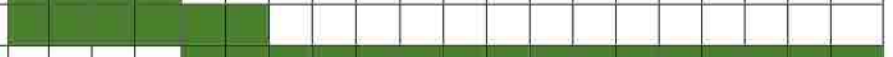
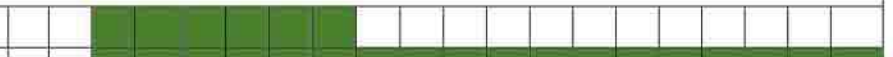
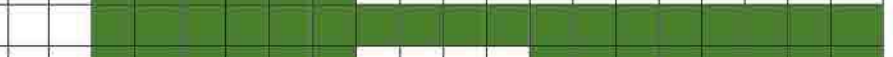
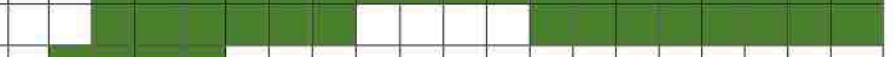
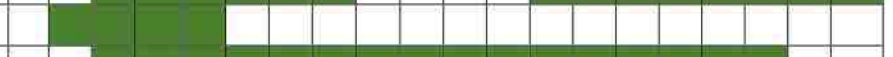
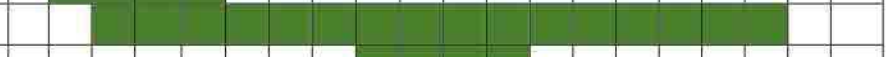
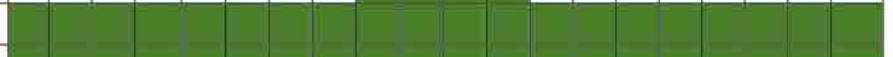
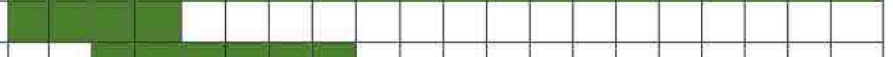
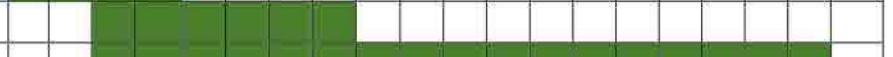
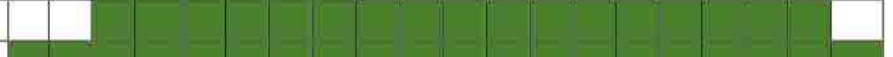
Participant Perceptions: The perception of producers to continue with CSAF practices is vital to understanding the post-project potential. We will assess attitudes and behaviors pre- and post-project to measure the project's impact on attitude and behavior change. Co-PIs Leggette and Wald will administer surveys to all participants every year of the project to evaluate changes in perceptions and attitudes toward CSAF practices. Data will provide actionable advice for scaling the model nationally as well as for future USDA initiatives that encourage CSAF commodities.

Scalability: Across the U.S., there are nearly 3000 Soil and Water Conservation Districts (nearly one in every county) that can implement the climate-smart management plan and certify climate-smart commodities. Leveraging this existing resource and uniting it with outcomes from our MMRV and Market Expansion and Development plans will provide a cohesive model that can be executed nationally.

VII: TIMING OF PROJECT EXPENSES

Timing of expenses includes only AgriLife budget (i.e., excludes subawards).

No.	AgriLife Expenses	Quarters																			
		Year 1				Year 2				Year 3				Year 4				Year 5			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Personnel																					
	PIs Howe, Rajan, Benavidez, Ribera, Smith, Leggette, Wald, Outlaw, and Palma	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Other PIs	■	■	■	■																
	Project Manager	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Communications Manager	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Database Manager			■	■	■	■	■	■	■	■										
	Climate-Smart Ambassador			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
	MMRV post-docs			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
	ALEC post-docs	■	■	■	■	■	■	■	■					■	■	■	■	■	■	■	■
	AGEC post-docs	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Climate-Smart Graduate Ambassador									■	■	■	■	■	■	■	■	■	■	■	■
	AGEC Graduate Research Assistant					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Undergraduate labor	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Travel																					
	Ambassador site visits			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Setup continuous GHG monitoring (MMRV)			■	■																
	MMRV maintenance/data collection				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	ALEC travel	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	AGEC travel	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Supplies																					
	Ambassador supplies			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		

	MMRV computers/servers/data storage	
	AGEC computers/servers	
	MMRV supplies	
	MMRV gases and replacement parts	
Other Costs		
	Routine soil analysis	
	GHG analysis	
	SOC and TN analysis	
	Electrical setup	
	Data and electricity flux towers (MMRV)	
	Factory calibration of trace gas analyzers	
	Software licenses	
	Message distribution system service fees	
	Project economic data fee (AGEC)	
	Kick-off event expenses	
	Shipping	
	State vehicle mileage	
Equipment		
	Equipment	
Tuition		
	Graduate tuition	

	5-year project total	Year 1	Year 2	Year 3	Year 4	Year 5
Total Direct Cost	$15,006,333.16	$12,187,962.99	$12,196,573.48	$11,782,038.48	$10,650,401.34	$61,823,309.45
Indirect Cost	$657,278.00	$734,091.00	$734,833.00	$609,089.00	$441,270.00	$3,176,561.00
Total Budgeted	$15,663,611.16	$12,922,053.99	$12,931,406.48	$12,391,127.48	$11,091,671.34	$64,999,870.45

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No.	Milestone	Lead Inst.	YEAR																			
			1				2				3				4				5			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Texas Climate-Smart Initiative Plan																						
01	**Hire personnel (people)**																					
	AgriLife	AgriLife	3		8		2				10											
	TSSWCB	TSSWCB			7																	
	TFS	TFS		1													1					
	UTRGV	UTRGV			2																	
	PVAMU	PVAMU				3																
	Tarleton	Tarleton		1											1							
02	**Develop an application form and initial questionnaire/application form**	All (AgriLife & TSSWCB lead)																				
03	**Develop selection criteria based on specific criteria**	All (AgriLife lead)																				
04	**Develop a contract to enroll participants into the TCSI program**	All (AgriLife lead)																				
05	**Launch website**	AgriLife																				
5.1	TCSI main website	AgriLife		1																		
5.2	Bilingual (English and Spanish) website (hosted by UTRGV) targeting Hispanic producers	UTRGV		1																		
6	Launch social media (English and Spanish) (Facebook, Youtube, and Twitter)	UTRGV		6																		
7	**Clone existing TSSWCB database and develop it for TCSI project**	AgriLife																				
8	**Develop educational materials for participants (number indicates educational brochures for major communities)**	All (AgriLife as lead)	2	2	4																	
9	**Host kick-off events for participants and train Climate-Smart Ambassadors (10 total)**	AgriLife, UTRGV		2	3	3	2															
10	**Select/enroll participants, perform initial site-visits, and develop climate-smart management plan**	AgriLife & TSSWCB																				
	Participants (all) = 1293				100	300	400	300	100	93												
	Participants (underserved) = 229				18	53	71	53	18	16												
	Estimated acres = 89,590				6,929	20,787	27,715	20,787	6,929	6,444												
	Estimated head (animals) = 61,120				4,733	14,200	18,933	14,200	4,733	4,402												
11	**Distribute producer payments**	TSSWCB																				
11.1	Forest (550 participants) (half upfront; half after work completed)				$1,031,250	$1,031,250	$2,062,500	$2,062,500	$ 1,031,250	$ 1,031,250												
11.2	Animal Waste (18 participants) (half upfront; half after work completed)				$195,000	$195,000	$390,000	$390,000	$ 195,000	$ 195,000												
11.3	All other commodities (725 participants)				$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813,450	$1,813450		
12	**Complete surveys to determine adoption of CSAF practices by producers (random sample) who had at least one touch point with the project and submit report (Number indicates the number of surveys that will be sent out)**	AgriLife					1500	4500	6000	4500	1500	1500										
13	**Evaluate educational strategies and producer perceptions toward climate-smart agriculture**	AgriLife																				
13.1	Complete recruitment and engagement interviews		10	10	10	10	10	10	10	10												

No.	Milestone	Lead Inst.	YEAR																			
			1				2				3				4				5			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
13.2	Complete longitudinal program improvement focus group meetings (minimum 5 participants/focus group) and submit response report. Number indictes number of focus group meetings			1	1			1	1			1	1			1	1			1	1	
13.3	Complete surveys (1 survey per year sent to two groups: 1) the general public and 2) agribusinesses (number indciates the number of surveys that will be sent out) and submit response report					2,750	2,750			2,750	2,750			2,750	2,750			2,750	2,750			
14	**Complete exit interviews with participants and submit response report (Number indicates total expected number of participants in the project)**	AgriLife																	1,293			
Texas Climate-Smart Initiative Measurement, Monitoring, Reporting, and Verification (MMRV) Plan																						
15	**Measure GHG emissions**	AgriLife & UTRGV																				
15.1	Identify 11 producer fields for continuous GHG emission monitoring			5	6																	
15.2	Finish installation of eddy covariance and long-term chamber equipment at the 11 continuous GHG monitoring sites				4	7																
15.3	Generate quarterly GHG emission data set for all 10 sites (5 climate smart paired with 5 business as usual) and generate GHG benefits annually (MT CO2eq/year for the 5 sites esimated at 50-70 acres)									2300				2300				2300				2300
15.4	Select sites for discrete sampling (108)			25	58	25																
15.5	Complete GHG discrete sampling (109,836)				3432	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	3432		
15.6	Complete GHG discrete analysis (109,836)					3432	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	3432	
15.7	Identify CAFOs for GHG monitoring			4	5	5	4															
15.8	Complete CAFO GHG baseline assessment (all 18 CAFOs)						4	5	5	4												
15.9	Generate post-adoption CAFO GHG emission dataset (18 CAFOs)										4	5	5	4	4	5	5	4	4	5	5	4
15.9b	Estimated GHG benefits (assume 1.9 eCO2/head/yr benefit; large farms 4000 head; small farms 500 head) unit MT CO2e/quarter										29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000
16	**Soil characterization**	AgriLife																				
16.1	Complete soil sampling (4444)				344	1031	1375	1031	344	320												
16.2	Complete soil analysis (4444)					344	1031	1375	1031	344	320											
17	**Estimate soil and manure carbon**	AgriLife																				
17.1	Complete full soil profile sampling (3555)				137	412	550	412	137	128							444	444	444	444		
17.2	Complete full soil profile analysis (3555)					137	412	550	412	137	128							444	444	444	444	
17.3	Complete basic sampling (14,220)				550	1650	2200	1650	550	511							1777	1778	1778	1777		
17.4	Complete basic analysis (14,220)					550	1650	2200	1650	550	511							1777	1778	1778	1777	
17.5	Complete CAFO manure collection and				18	18	18	18	18							18	18	18	18	18		
17	**Model climate-smart benefits of farms enrolled in the project**	AgriLife, PVAMU																				
17.1	Perform calibration and validation of models (DayCent/COMET/DSSAT) for simulating climate-smart benefits																					
17.2	Generate field-scale post-adoption climate-smart benefits of row crops, rice, pasture and vegetable commodities using models (~600 individual fields are targeted in year 3, 4 and 5)										150	150	150	150	150	150	150	150	300	300		

No.	Milestone	Lead Inst.	YEAR																			
			1				2				3				4				5			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
18	**Remote Sensing**	AgriLife, PVAMU																				
18.1	Finalize remote sensing methods for biomass changes in row crop, pasture and forest systems																					
18.2	Report monthly biomass estimates for all participating row crop, pasture, and forest sites																					
19	**TCSI App**	AgriLife																				
19.1	Develop and test TCSI app for self-reporting of practices and uploading of geotagged photos																					
19.2	Release TCSI app and collect data																					
Texas Climate-Smart Initiative Commodity Market Development																						
20	**Complete logos and branding identity (numbers indicate unique logos completed)**	AgriLife		5																		
21	**Finalize selection of the products to conduct the consumer willingness to pay studies (the number indicates selected commodities)**	AgriLife				2																
22	**Complete survey design, IRB approval and data collection (Numbers indicate number of participants in the surveys)**	AgriLife, Tarleton, PVAMU					50	50	50	50	50	50	50	50								
23	**Final report on consumer willingness study (numbers refer to the number of growers that will receive the consumer information)**	AgriLife, Tarleton																	50	50	50	50
24	**Complete promotion of CSAF commodities to agribusinesses (numbers indicate agribusinesses included)**	AgriLife, Tarleton							5			5		10		10	5					
25	**Complete promotion of CSAF commodities to general public (numbers indicate unique promotion events or activities)**	AgriLife, Tarleton					2		2		3		3		3		2					
26	**Finalize development and expansion of markets for CSAF commodities (numbers indicate unique agribusiness establishments targeted)**	AgriLife, Tarleton								2		2		2		2		2		2		
27	**Finalize definition of CSAF commodity supply chain (numbers indicate unique commodiites included)**	AgriLife, Tarleton						10														
28	**Complete development of supply-chain metrics to enhance traceability and provenance of CSAF commodities and ingredients (numbers indicate [metrics, commodities] completed**	AgriLife, Tarleton													5			5				
29	**Finalize protocol for tracking GHG benefits through CSAF commodity supply chain (numbers indicate [carbon market programs/registries, farm types] addressed)**	AgriLife, Tarleton																		[5,10]		
30	**Finalize implementation and evaluation of supply chain traceability systems (numbers indicate supply chain participants [included,completed])**	AgriLife, Tarleton										[5,0]	[5,0]	[5,0]	[5,0]	[5,0]	[5,0]	[5,0]	[5,0]	[5,0]	[5,5]	
Texas Climate-Smart Initiative Farm-level Cost and Returns Estimation																						

No.	Milestone	Lead Inst.	YEAR																			
			1				2				3				4				5			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
31	**Publish yearly cost and returns budgets for major Texas crop and livestock enterprises that are climate-smart (~10 commodities) (numbers indicate unique enterprises for which annual budgets have been completed)**	AgriLife, Tarleton			5	5			5	5			5	5			5	5		5	5	
32	**Finalize profitability projections for CSAF commodities that incorporate production and price risk (all major commodities ~ 10) (numbers indicate unique commodities for which profitability projections have been completed)**	AgriLife, Tarleton			5	5			5	5			5	5			5	5		5	5	
33	**Develop CSAF production functions for Texas crop and livestock enterprises that will be utilized in this project as well as future climate-smart efforts**	AgriLife, Tarleton			5	5			5	5			5	5			5	5		5	5	
34	**Finalize development of representative beef grazing and dairy farms that adopt CSAF prcatices (numbers indicate unique representative farms developed)**	AgriLife, Tarleton						30														
35	**Complete estimation of farm-level economic impacts of CSAF practices using simulation models and available data (numbers indicate [unique practices, representative farms] completed)**	AgriLife, Tarleton, PVAMU													[5,15]	[5,15]		[5,15]		[5,15]		
36	**Complete synthesis of additional economic impacts (besides carbon credits) of CSAF production practices (numbers indicate unique representative farms for which additional economic impacts completed)**	AgriLife, Tarleton, PVAMU															5	10	5	10		
37	**Publish economic analysis information shared with producers to encourage peer adoption (numbers indicate [farm types/commodities reached, individual farms targeted, conference printouts, brochures provided for producers]**	AgriLife, Tarleton, PVAMU								[10,0,100 ,200]				[10,0,100 ,400]				[10,20,10 0,225]	[10,150]	[10,100]	[10,50,10 0,1000]	
38	**Complete determination of crop insurance implications of CSAF adoption (numbers indicate commodities for which analyses completed)**	AgriLife, Tarleton														2		3		3		
Texas Climate-Smart Initiative Carbon Credit Market Development																						
39	**Synthesize relevant carbon credit market information for producers**	AgriLife, Bcarbon, Tarleton, Nori																				
39.1	Host virtual market update events for producers	Bcarbon			1		1		1		1		1		1		1		1			
40	**Establish working interface and partnership between registries and producers interested in carbon markets**	BCarbon																				
41	**Identify 10 sites for carbon credit case study**	Bcarbon,Nori																				
41.1	Conduct project baselining and case study development on project sites																					
41.2	Provide annual reports to each project site																					
42	**Develop annual "how-to guide" for farmers and landowners interested in carbon markets and update every year**	Bcarbon																				

No.	Milestone	Lead Inst.	YEAR																			
			1				2				3				4				5			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Project Conclusion																						
42	Publish research and extension publications	All				2				4				4				6				6
43	Project reports	All				1				1				1				1				1

Texas A&M AgriLife Research: Texas Climate-Smart Initiative

Climate-Smart Practices and Limitations

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

NRCS Practice Code	Practice Name
311	Alley Cropping
313	Waste Storage Facility
317	Composting Facility
327	Conservation Cover
328	Conservation Crop Rotation
329	Residue and Tillage Management, No-Till
332	Contour Buffer Strips
340	Cover Crop
342	Critical Area Planting
345	Residue and Tillage Management, Reduced Till
379	Forest Farming
380	Windbreaks/Shelterbelt Establishment and Renovation
381	Silvopasture
386	Field Border
390	Riparian Herbaceous Cover
391	Riparian Forest Buffer
393	Filter Strip
412	Grassed Waterway
420	Wildlife Habitat Planting
422	Hedgerow Planting
449	Irrigation Water Management
484	Mulching
512	Pasture and Hay Planting
528	Prescribed Grazing
550	Range Planting
585	Stripcropping
590	Nutrient Management
592	Feed Management
601	Vegetative Barrier
603	Herbaceous Wind Barriers
612	Tree/Shrub Establishment
629	Waste Treatment
632	Waste Separation Facility
634	Waste Transfer
645	Upland Wildlife Habitat Management
666	Forest Stand Improvement

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

Table of Contents

Overview of Reporting Requirements

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

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

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

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

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

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.