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:
NR243A750004G003		Date of Final Signature - 10/31/2028	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	CENTRAL STATE UNIVERSITY NULL PO BOX 1004 WILBERFORCE OH 45384-1004 UEI Number / DUNS Number: UZUVJXMDNZY6 / 008873747 EIN:

7. NRCS Program Contact	8. NRCS Administrative Contact	9. Recipient Program Contact	10. Recipient Administrative Contact
Name: James Denton	Name: Marnie Wilson	Name: Ibrahim Katampe	Name: Bobbie Bowling
(b)(6)			

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

15. Project Title/ Description: Expands markets for climate-smart beef, fruit, vegetable and other specialty crops in OH and MI and supports farmers and ranchers with implementation and monitoring of climate-smart practices.

16. Entity Type: T = Historically Black Colleges and Universities

17. Select Funding Type

Select funding type:	☒ Federal	☒ Non-Federal
Original funds total	$4,992,288.00	$329,029.00
Additional funds total	$0.00	$0.00
Grand total	$4,992,288.00	$329,029.00

18. Approved Budget

Personnel	$1,507,435.00	Fringe Benefits	$504,893.00
Travel	$213,083.00	Equipment	$10,600.00
Supplies	$9,997.00	Contractual	$421,187.00
Construction	$0.00	Other	$2,325,093.00
Total Direct Cost	$4,364,227.00	Total Indirect Cost	$628,061.00
		Total Non-Federal Funds	$329,029.00
		Total Federal Funds Awarded	$4,992,288.00
		Total Approved Budget	$5,321,317.00

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

Name and Title of Authorized Government Representative	Signature	Date
Katina Hanson Acting Senior Advisor for Climate-Smart Commodities	KATINA HANSON Digitally signed by KATINA HANSON Date: 2023.10.27 11:27:36 -05'00'	
Name and Title of Authorized Recipient Representative	Signature	Date
Dr. Alex Johnson Interim President	Alex B. Johnson	10/24/23

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 Central State University, 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 $5,321,317.00

TOTAL FEDERAL FUNDS $4,992,288.00
PERSONNEL $1,159,565.00
FRINGE BENEFITS $388,379.00
TRAVEL $163,910.00
EQUIPMENT $10,600.00
SUPPLIES $7,690.00
CONTRACTUAL $323,990.00
CONSTRUCTION $0.00
OTHER $2,310,093.00 (PRODUCER INCENTIVES $1,078,444.00)
TOTAL DIRECT COSTS $4,364,227.00
INDIRECT COSTS $628,061.00

TOTAL NON-FEDERAL FUNDS $329,029.00
PERSONNEL $0.00
FRINGE BENEFITS $0.00
TRAVEL $0.00
EQUIPMENT $0.00
SUPPLIES $0.00
CONTRACTUAL $0.00
CONSTRUCTION $0.00
OTHER $15,000.00 (PRODUCER INCENTIVES $0.00)
TOTAL DIRECT COSTS $15,000.00
INDIRECT COSTS $314,029.00

Recipient has an approved Negotiated Indirect Cost Rate Agreement (NICRA) with a rate of 45% percent and a base of $2,093,534.00, but the recipient has elected to use unrecovered indirect costs as match in the amount of $314,029.00.

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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Ohio and Michigan Climate-Smart Ag. Markets

EXECUTIVE SUMMARY AND OVERVIEW

According to UN 2030 Sustainable Development Goals, there is growing recognition of the need for profound transformations in the way we produce, process, and eat our food. This means creating agri-food systems which deliver "food security and nutrition for all in such a way that the economic, social, and environmental bases to generate food security and nutrition for future generations are not compromised" (FAO, 2018). Climate Smart Agriculture and Forestry (CSAF) can be argued as the future of food production in an era when global climate change can be threatening food supply for all mankind. As in the case of technological change in U. S. agriculture, the primary impetus of climate smart technology adoption has been for large commodity growers. While it makes sense for these farms to become more climate smart, one needs to consider that the number and influence of small-scale, limited resource, and urban farms are growing throughout the nation. However, climate smart technologies are often not adopted by socially disadvantaged and limited-resource farmers. This is not surprising because the sad trend is that these farmers are the last adopters of modern technology. Reasons for this include but not limited to a lack of technical knowledge; a lack of knowledge of benefits and usefulness; and for monetary reasons. Since profit is at the core of the viability of every farm, for socially disadvantaged and limited-resource farmers to adopt climate smart agricultural technologies, a strong case must be made for both societal benefits and monetary benefits of these modern systems.

Small farms account for 90% of all farms, 47% of operated land and 21% of production value. Many do not make a profit (have a net loss in income from farming) (A Look at America's Family Farms, USDA, USDA July 29, 2021). Many of these small scale and limited resource farmers rely on a combination of fruits and vegetables, as well as livestock production on limited land area. In addition to production area, constraints in marketplace accessibility and profitability since competition with larger operations with vastly larger volumes of product leaves the small farmer in a challenging situation. After the COVID-19 pandemic, more than ever before, the U.S. consumer is looking towards their local farms and urban farms to sell vegetables, small fruits, and even local animal products such as eggs, chicken, grass-fed beef, etc. Thus, bringing local farms into the fold of CSAF users, should be a priority for all Land-Grant universities, and helping socially disadvantaged and limited resource farmers to adopt these technologies profitably, should be a driving goal for 1890 Land-Grant programs.

Central State University (CSU), the only 1890 Land-Grant university with agricultural research and extension programs in Ohio and Michigan in collaboration with strategic partnerships requests $4,992,288 to provide a comprehensive approach to training, demonstration, verification, economics, marketing, leading to the adoption of climate smart practices among amongst 20 socially disadvantaged fruits and vegetable producers covering 20acres of farmlands in Ohio and southern Michigan.

This Ohio and Michigan Climate Smart Ag. Market project will provide performance base direct financial incentives and create synergy between climate smart feedlot operations who uses climate smart manure management systems to develop nutrients that will help vegetable growers reduce the demand for conventional fertilizers and irrigation.

Project Outline

In 2017, the United States had 48,697 producers who identified as black, either alone or in combination with another race. They accounted for 1.4 percent of the country's 3.4 million producers. Their farms were smaller, and the value of their agriculture sales was less than 1 percent of the U.S. total (https://www.nass.usda.gov/Publications/Highlights/2019/2017Census_Black_Producers.pdf). A considerable number of socially disadvantaged producers rely on fruit and vegetable production because of the relatively high profit margin when these products are sold in direct-to- consumer markets. However, these farmers face severe constraints along the food chain such as, antiquated production techniques leading to low yields, over-reliance on manufactured fertilizers that increase their production costs, and not differentiating their products at the marketplace leading to missed opportunities of earning premium prices.

This project will focus on introducing innovative and integrated CSAF practices that enhance production and increase profitability of fruit and vegetable production at small-scale and limited resource farms operated by socially disadvantaged farmers through:

- Educating socially disadvantaged and underserved farmers on sustainable CSAF production practices and value chain addition of select specialty crops-leverage on emerging specialty crop markets.
- Some of the uniqueness of this project can be illustrated in Figure1 below:

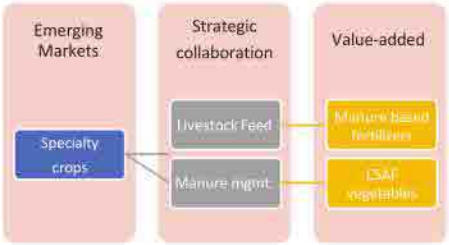


Fig.1

Project Objectives:

Objective 1: Management of feeds and manures in feedlots by implementing CSAF practices to reduce greenhouse gas emissions and prepare manure-based fertilizers of consistent nutrient profiles suitable for replacing manufactured fertilizers for small-scale and limited resource vegetable farms.

Objective 2: CSAF assessment, verification, and demonstrations for small scale and urban vegetable farms.

Objective 3: Determining the marketing and economic viability of small-scale vegetable farms that have implemented CSAF.

Objective 4: Providing training of socially disadvantaged farmers nationwide about CSAF and corresponding economics/marketing/farmer organizational parameters.

The Program overall expected outcome is to: Develop sustainable vegetable crop production practices (illustrated in Fig. 2) that utilizes:

- Manure Management and manure-based fertilizers that are developed through collaboration from innovative CSAF livestock Feedlot practices.

- Lowering the operating cost of small and limited resource vegetable farms by training farmers in precision application of nutrients based on plant petiole analysis.
- Developing and evaluating a differentiated product based (marketing strategy) on vegetables grown using CSAF, that has the potential to increase profitability of these farms.

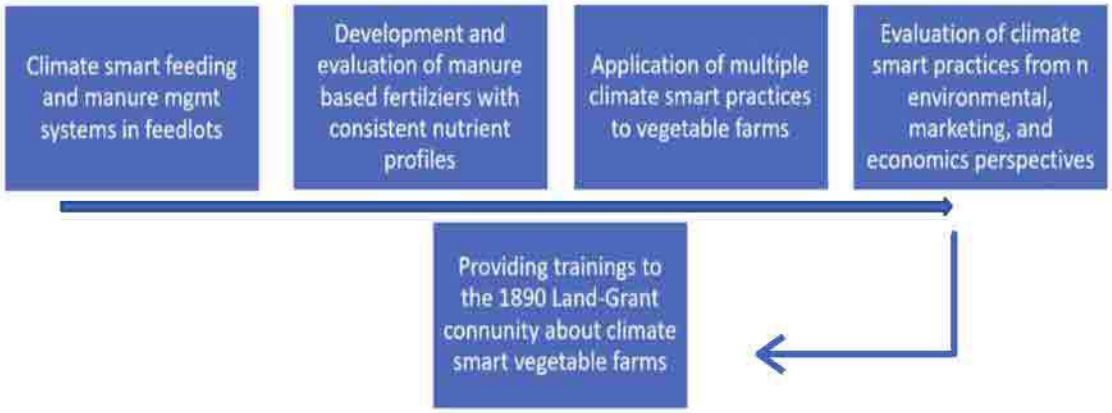


Fig.2

Strategic alignment with NRCS codes

The Climate Smart Agriculture and Forestry (CSAF) practices that would be implemented through this project is intended to meet NRCS standard practices and codes. The table below lists applicable codes.

NRCS Practice Codes	Practice Names	Process for ensuring that implementation of the climate smart practices meet the applicable standards	Practice Sites
374	Energy Efficient Agricultural Operation	We will seek after greater efficiency at feedlot operations by reducing diesel usage by replacing diesel-powered feed management machinery with electrically powered robots.	A&B Porteaus (Feedlot)
592	Feed Management	We will use an animal nutritionist to develop feedlot cattle diets that are nutritionally complete but uses alternative feed ingredients. We will improve feeding efficiency by manipulating feed amounts and feeding frequency per animal. We will analyze manures to determine their nutrient profiles leading to its ability to substitute manufactured fertilizers, particularly phosphorus, in vegetable farms. This will reduce the dependence on imported phosphate fertilizers.	
590	Nutrient Management	The nutrient management plan for the feedlot in this project is NRCS approved. We will develop a nutrient management plan for vegetable production that maximizes the substitution of manufactured fertilizers with manures. This nutrient management plan will be implemented by making manure applications to follow plant nutrient requirement obtained through plant petiole analysis.	
318	Short Term Storage of Animal Waste and Byproducts	This project will implement short term manure storage in a feedlot under aerobic conditions to reduce greenhouse gas emissions. Emissions data will be collected and reported to verify the impact of our activities in reduction of greenhouse gasses.	
484	Mulching	Manure slurry can be used on mulch where applicable to improve efficient use of irrigation water and moisture management in the soil. Use of manure slurry will also benefit plant health because the slurry will enhance soil microbial activity which has been demonstrated to make soil nutrients more available to plants.	PRODUCERS FARMS
345	Residue and Tillage Management, Reduced Till	Reduced tillage practices will be used to limit soil disturbance and promote soil health.	
340	Cover Crop	The producers will plant 3 seasonal vegetabless to include cover crops per year	
328	Conservation Crop Rotation	Conservation Crop Rotation (328) practice will applied in conjunction with Cover Crops (340), Reduced Till (345), Crop rotations will help break insect, disease, and weed cycles in addition to adding diversity to farm operations.	
595	Pest Management Conservation Syste	A Pest Management Conservation System (595) will be associated with Crop Rotation (328) ,Nutrient Management (590) and Cover Crop (340) practices.	

Overview of Approach/ Methodology

This project's goal is to bring CSAF practices to small and limited resource farms operated by minorities and other socially disadvantaged people in Ohio and Michigan. The focus is on small-scale vegetable and small fruit growers, because the minority and socially disadvantaged farmers are primarily vegetable and small fruit producers. The project also collaborates with feedlots and builds synergy between them and vegetable growers because of a symbiotic relationship between these two operations. Feedlots using CSAF technologies can produce manure-based fertilizers with consistent nutrient profiles that could replace commercially available plant nutrients which will build symbiosis among agricultural producers and help reduce the deleterious effects of high-priced manufactured fertilizers.

In this project, the recruited farmers will provide land and other resources for demonstrations using both CSAF and conventional practices. Project team members and participating farmers will partner to assess both environmental and production parameters from these demonstrations which will provide the data needed to verify the impacts of implementing CSAF on small-scale vegetable and fruit farms such as tomatoes, lettuce, cabbage, carrots, pepper, watermelon, pineapple, apple etc. This project also investigates how CSAF is valued by the market. Since many small scale and limited resource farms are operated by socially disadvantaged farmers, and these farmers are almost always participating in direct sales markets, farmers markets in both rural and urban areas would be used for consumer evaluation and perceptions of food grown using CSAF. The ultimate marketing goal is to develop a differentiated product with merchandising information to help socially disadvantaged farmers earn premium prices for their vegetables.

Central State University will lead the training of socially disadvantaged farmers nationwide in CSAF practices and impacts via field days, annual farmer conferences, technical support about CSAF adoption, and videos. CSU will also engage all 1890 Land-Grant institutions about CSAF systems by bringing Agriculture and Natural Resources leaders from these institutions to workshops and conferences. Each participating farm will be evaluated by using USDA's COMET-Farm model to identify specific CSAF practices that have the greatest potential to maximize carbon sequestration (C- seq) and minimize greenhouse gas (GHG) emissions (Swan et al. 2019). This project will involve hiring five new CSU Extension program assistants, one specialist in plant nutrients, and one Small Farm/Marketing Coordinator. These new staff will work closely with feedlots, farmers, and assessment technical team to create a practical CSAF demonstration and training program for CSU. Much of the budget will go to participating producers and feedlots, who will be incentivized to participate in this project, and a lesser portion to pay salaries of new staff at CSU and other operating costs. This project will be implemented for five years, giving enough time to verify if the continued application of CSAF is improving environmental parameters.

OBJECTIVE 1

Management of feeds and manures in feedlots by implementing CSAF practices to reduce greenhouse gas emissions and prepare manure-based fertilizers of consistent nutrient profiles suitable for replacing manufactured fertilizers for small-scale and limited resource vegetable farms.

Implementing Climate-Smart Practices and Activities on Working Land - (Components of the life cycle approach, beginning with the animal feeding phase in the feedlot).

Beef from this facility is primarily marketed into branded programs, and the plan would be to utilize survey methodology and focus groups from the consumers of those brands to gain insights on market value (and

potential value-added premiums) of the addition of producing the product within a more climate smart and verified system.

Task 1: *Utilization of new feed additives and rations that significantly lower (80-90%) the enteric methane emissions from the ruminant animals being fed.*

This project will develop cattle feed formulations that might include corn/new corn variants, soybeans, etc., to reduce the overall GHG and carbon footprint of feedlot operations (Muñoz et al. 2016). CSU has been given the license by the state to cultivate this potential commercial crop. The project will also explore the emerging Hemp seeds market **(corn/ hemp)** as feed formulary.

Timeline: Feeding operations would commence late 4th quarter of 2022 or early 1st Quarter of 2023 and continue through the life of the project.

Project team involvement: Feed rations will be formulated by Dr. Francis Fluharty and managed daily by the Porteus operator and the capability of the feeding system computer.

Task 2: *Utilization of a robotic, AI-enhanced, feeding system that changes the emissions footprint by:*

This project will evaluate the cost and environmental impacts of using robotic systems for mixing and distributing feed at animal feedlots, replacing diesel powered tractor driven mixers and loaders with electrically powered robotic units, and generating two thirds of their used power from solar panels.

Additionally, the project will utilize the robotic sensing capability and AI-enhanced "feed bunk management" learnings and multiple times-a-day feeding capacity to improve animal performance (better feed efficiencies and rate of gain), reduce feed consumed, and both lowering emissions footprint of the feed produced and consumed and providing economic savings and value. The economic and environmental impacts of these practices will be evaluated and disseminated.

Timeline: Feeding operations would commence late 4th quarter or early 1st quarter of the start of the grant cycle and continue through the life of the project. Robotic feeding technology will be provided, and daily operation will be done by A&B Porteus.

Project team involvement: The feeding system will collect the "feed data" for inclusion in the evaluations by Drs. Shah and Marrison of Ohio State University.

Task 3: *Feedlot's manure storage operations that reduces the GHG emissions profile*

This project will evaluate the use of technology to increase aerobic storage conditions (vs. normal anaerobic environment) of manure in feedlots resulting in significant reductions in ammonia, methane, and hydrogen sulfide emissions in storage period.

The same technology will be used to provide nominal agitation to keep manure solids perpetually in suspension and eliminate the need for agitation when manure is moved to the crop fields. This should result in significant emissions reductions by eliminating the diesel fuel usage needed for agitation and circulation, and the gases produced and emitted during the process.

All practices related to CFAOs in this project meet NRCS Practices and Codes. Manure storage is NRCS design approved, and manure applications are within A&B Porteus' CNMP.

Timeline: Manure aeration system will be installed prior to operational beginning of the facility and operate continuously throughout this project's life.

Project team involvement: Emission data and readings are collected monthly by Drs. Shah and Marrison, as are nutrient sampling of the manure solids prior to field and crop applications.

Task 4: *Utilization of precision application technologies to optimize nutrient applications to crop fields from the animal manure and supplemental commercial fertilizers*

This project will use grid soil sampling, manure nutrient testing, precision GPS enabled manure nutrient applications to help develop plant fertilizers with consistent nutrient profiles (Jin et al. 2019 and Norris and Congreves 2018). This will enable vegetable growers to plan manure-based fertilizer applications to replace specific amounts of synthetic fertilizers, using the vegetable crop nutrient requirements (https://www.extension.purdue.edu/extmedia/ID/ID-56-W%202020.pdf).

Timeline: A&B Porteus is responsible for Grid soil sampling biannually following crop harvest in the fall, providing variable rate nutrient application technology and equipment, and providing data to Shah and Marrison for their analysis work both post crop harvest and with spring planting, and will continue an annual cycle throughout the project.

Project team involvement: A&B Porteus, Drs. Shah, and Marrison.

OBJECTIVE 2

CSAF assessment, verification, and demonstrations for small scale and urban vegetable farms.

CSAF practices can make a positive impact on the environment, even in small scale and urban farms. CSAF practices that are suitable for small-scale and urban vegetable farms will be evaluated, verified, and demonstrated. These include:

1) use of regenerative agriculture to replace commercial fertilizers with natural and sustainable products such as manure-based products from Objective 1.
2) use of no till or minimal till methods and mulching to reduce irrigation demands, and
3) use of metering device attached to a nozzle for nutrient application using plant tissue analyses to reduce fertilizer applications.

Recruited small scale and limited resource vegetable farms operated by socially disadvantaged farmers will be used to implement this objective. Demonstrations of CSAF and conventional practices (control) will occur at the recruited farms. Evaluation results suggests the most effective practices to reduce the footprint of specialty crop production include use of manure/organic amendments[4-6], composting[7-8], improved nutrient management[4], minimal or no-tillage. Data will be collected regarding soil carbon and greenhouse gas (GHG) emissions from various practices on the farms. Additionally, data will be collected on input levels, operating costs, and output levels. These data will be maintained periodically over time for a four-to-five-year horizon. Environmental data will be statistically analyzed using regressions to determine the impact of CSAF practices on carbon sequestration and greenhouse gas emissions. Input, output, labor, and price data would be used later for economic assessments of CSAF systems in the framework of small scale and limited-resource vegetable farms.

Timeline: Objective 2 will be completed during Years 2, 3, 4, and 5 of this project. Year 1 will be used to determine the CSAF practices that will be implemented on the vegetable farms and prepare the soil and personnel for Objective 2.

Project team involvement: CSU Extension program assistants, Dr. Ibrahim Katampe (PD), specialist in plant nutrients, small farm manager/market coordinator, Ohio State University Extension staff, cooperating farmers. Farm level Data collection will be done by the CSU Extension program assistants. They will be assisted by agriculture students enrolled at CSU. In this manner, this project will provide hands-on agricultural and environmental science training to students from historically underserved populations.

OBJECTIVE 3

Determining the marketing and economic viability of small-scale vegetable farms that have implemented CSAF.

This objective will examine consumer perceptions of CSAF production practices and to better understand marketability of vegetables, small fruits, and meat grown under these practices. There will be a series of consumer focus group interviews that will: 1) examine consumer perceptions of quality, efficiency, and food safety of CSAF commodities; and 2) use consumer- perception data to facilitate CSAF product marketing and branding practices for socially- disadvantaged, limited-resource, and urban farmers. The theoretical approach to Objective 3 will include Zepeda and Deal's Alphabet Theory (2009), developed in 2009 as a framework for understanding organic and local food purchase behavior. This framework has been used to improve knowledge of why consumers buy organic and/or local foods. Factors related to environmental attitudes and behaviors can be added to the framework to better understand perceptions of sustainability associated with CSAF products and their impact on product marketability. Qualitative data will be collected through three focus group interviews and used to examine consumers' perceptions of CSAF products. The interview guide will contain questions probing participants' 1) experiences with food purchases, 2) perspectives on product and/or brand terms "organic," "local," "sustainable," and "carbon-friendly," 3) knowledge about CSAF practices, and 4) perceived advantages and disadvantages of buying CSAF products. Information and insights gleaned from the focus group and individual interviews will be included in a report designed to facilitate producer marketing and branding practices of CSAF products, including product labeling, target marketing, and market segmentation.

The consumer valuation of food grown under CSAF practices will be determined via Becker-deGroot-Marschak (BDM) experimental auctions. Since socially disadvantaged vegetable farmers typically sell in direct-to-consumer markets, farmers' market patrons in Ohio and Michigan will be recruited in BDM auctions where they will be asked to bid on a bag of vegetables grown using CSAF practices against a bag of similar vegetables that were grown conventionally. These consumers will receive knowledge about the different production practices from a brochure and a short video about climate smart agriculture and their potential impacts on the environment and society. When the consumers place a bid, a computer will be programmed to provide random price bids within a range that represents retail vegetable prices at farmers markets. If the consumer bids exceed the computer bid, the consumers will be allowed to purchase climate smart products. This auction process will reveal if vegetables grown under CSAF will command a premium price, and a survey of the participating consumers will reveal their perceptions of CSAF systems.

Production data from Objective 2 would be used to develop production cost and profit estimates for small and limited-resource farms implementing CSAF vs. conventional practices. Price data

will be obtained from input suppliers, procurement costs, and retail prices from farmers markets using established databases from Ohio and Michigan. Both means and standard deviation of measured parameters would be used to develop estimates on average returns to labor and management and ex-ante risk measurements of profit.

Timeline: Objective 3 will be completed during Years 4 and 5 during the summer and fall farmers' market season.

Project team involvement: Marketing specialist (to be recruited), Dr. Ibrahim Katampe, CSU Extension program assistants, and small farm manager/market.

OBJECTIVE 4

Providing training of socially disadvantaged farmers nationwide about CSAF and corresponding economics/marketing/farmer organizational parameters.

CSU's 1890 Land-Grant program will train minority and other socially disadvantaged farmers about CSAF applications for small and limited resource farms. A video library will be created that will document how CSAF is being implemented at demonstration farms. These videos will reside on a CSAF page of our 1890 Land-Grant Extension smartphone Application (App). Project Management Team will contribute to the App by developing media about the costs and benefits of each CSAF practice that are appropriate for small scale vegetable farms. These videos will include 1) How aerated manure-based fertilizers and cover crops can substitute much of the nutrient requirements for various vegetable crops; 2) how no till, mulching, and compost use can significantly reduce irrigation needs; 3) how can precision application of plant nutrients based on plant petiole analysis can be both environmentally and economically salubrious, 4) consumer perceptions and merchandising of food grown using CSAF practices, and 5) economics of CSAF adoptions for small scale vegetable farms. Farm field days will be scheduled at the CSAF demonstration sites where socially disadvantaged farmers will be invited to participate. CSU's 1890 Land-Grant extension professionals will provide farmer training, including hands-on training, and appointments will be made for Extension staff to provide technical assistance to farmers who would like to implement some of the demonstrated CSAFs. Extension educators will also provide information and technical assistance to socially disadvantaged farmers requiring financial assistance to implement CSAFs on their farms.

The project's results will be dissemination in CSU's annual small farm conference that brings together socially disadvantaged farmers, 1890 Land-Grant Research and Extension professionals, and USDA FSA, NRCS, and RD representatives. Grant funds will be used to invite agriculture staff from all eighteen 1890 Land-Grants to attend the conference and receive training about how CSAF practices can be implemented on small scale and urban vegetable farms. Limited resource vegetable and small fruit farmers will also receive this training, including training related to the use of CSU's 1890 Land-Grant extension's smartphone App.

Timeline: Objective 4 will be completed during Years 4 and 5 of the grant.
Project team involvement: Dr. Ibrahim Katampe, CSU Extension program assistants, and small farm manager/marketing specialist.

MEASUREMENT, MONITORING, QUANTIFICATION AND VERIFICATION (MMQV) PLAN

Leveraging Land Grant Scientific Expertise

Our MMQV team is a collaborative with OSU and our private sector partners who collectively bring a wealth of scientific expertise to improve our understanding and confidence in the estimated carbon sequestration and GHG emission reduction benefits associated with farm management practices.

General Approach to Sampling and Measurement

The OSU Team comprising of David L. Marrison, Professor-Department of Extension & Extension Educator for Agriculture & Natural Resources for Coshocton County will combine proven and/or emerging technologies within a beef feedlot production life cycle to demonstrate achievable improvements in emissions and the net carbon footprint of producing beef products, raising producer awareness and acceptance of the potential technologies, and encourage their adoption over time and helping assess consumer support for these production technologies.

The United Producers Inc. a livestock marketing cooperative with over 30,000 members/ producers. We would like to enhance this partnership and expand it to be inclusive of data collection and monitoring, and communicate to producers and appropriate groups, the carbon and greenhouse gas benefits associated that will be created with the funding of this grant opportunity.

Pivot Bio will enhance this partnership and expand it to be inclusive of data collection and monitoring and communicate to producers and stakeholders the greenhouse gas benefits associated from the use of nitrogen fixing microbes that will be created with the funding of this grant opportunity. Furthermore, this partnership seeks to facilitate the farm level development, adoption, and diffusion of science-based, climate-smart livestock production practices, including a more climate friendly produced grain and silage for the producer and ultimately the downstream consumer.

TRACKING AND QUANTIFYING BENEFITS

Data will be collected regarding soil carbon (CS) and greenhouse gas (GHG) emissions from the various practices. Dr. Ajay Shah, Ohio State University, will conduct life cycle assessment (LCA) to evaluate the environmental impacts of using CSAF practices that are suitable for small-scale and urban vegetable farms and compare with the existing practices for small-scale urban farm and conventional commercial scale farms. The system boundary will include the urban farm and feedlots. The LCA will be performed in compliance with the ISO standard (ISO, 2006). Dr. Shah will use SimaPro software (SimaPro 2022), for life cycle environmental modeling, and Environmental Protection Agency (EPA)'s Tool for Reduction and Assessment of Chemicals and Other Environmental Impacts (USDA EPA 2012) (TRACI) method to assess global warming potential, eutrophication potential, acidification potential, ecotoxicity, fossil resource depletion, etc.). Emphasis will be placed on global warming potential, which is the function of GHG emissions, because this will help us assess the carbon footprint for the entire process. The project team will use the relevant data collected from the different farms recruited for this project (Objective 1) on inputs to different unit operations in the system, yield and

potential output levels. The project team will also use the data collected on soil carbon and greenhouse gas (GHG) emissions from various practices. These data will also be supplemented with data collected from literature, and Federal LCA Commons (LCA 2022) and Ecoinvent (Ecoinvent 2022) databases.

The results of the data analyses will show the environmental impact reduction potentials of: (1) AI-enhanced feedlots, (2) replacing commercial fertilizers with natural and sustainable products such as manure based products from Objective 1, (3) using no till or minimal till methods and mulching to reduce irrigation demands, and (4) using precision nutrient application based on plant tissue analyses, separately and in tandem to determine the best practices for reducing GHG emissions.

Proposed MMRV plan

	Measurement/monitoring	Reporting	Verification
Enteric emissions	Methane emissions measured by Respiration chamber or In Vitro Incubation Total feed use	Total GHG emissions reductions based on methane emissions reductions	COMET farm will be used for verification of the measured emissions and the potential reductions in GHG emissions
Robotic, AI enhanced feeding systems	Electricity usage in the feedlots (for proposed approach), diesel use by tractors (for conventional approach)	Total GHG emissions reductions based on the electricity and diesel use	
	Feed consumption under current and proposed approach	Total GHG emissions reductions based on reduction in feed usage	
Feedlot manure storage operations	Methane emissions measured from the anaerobic and aerobic storage operations	Total GHG emissions reductions total methane emissions reduction	
Optimize nutrient application at small-scale farms	Measure use of manure and commercial fertilizer for conventional and proposed system	Total GHG emissions reductions due to reduction in commercial synthetic fertilizer use	

Marketing Plan:/ Strategy

An aspect of objective 3 is to develop and expand markets for climate-smart commodities generated because of project activities described above. Our strategy will include the following elements:

- *Strategic partnerships designed to market resulting climate-smart commodities:*

The two key partnerships necessary to market these products are already established in this project, namely Ohio State University Extension Service, represented in this project by Mr. David Marrison and Central State University Extension Service, represented by Dr. Cindy Folck. While Ohio State University Extension can market the importance, impacts, and results of this project to beef cattle producers at both a state and national level, Central State University would be able to market the project to small/limited-resource farmers and underserved farmers of Ohio. The corresponding marketing plan will involve developing fact sheets related to the project's results and hosting field days at participating farms in this project. Ohio State University Extension is well connected with cattle producers of the state, and Central State University has a strong

beginning farmer/small farm programs focusing on the needs of underserved farmers that are USDA BFRDP funded and USDA OPPE 2501 funded projects, respectively. A third strategic partner with expertise in produce marketing, will be leveraged to market the consumer perceptions and willingness to pay information of vegetables grown using climate smart practices. This partner will help prepare fact sheets and provide educational information during field days.

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

Feedlot: Project would envision the manure portion of the nutrient application to be the "baseline" and foundational portion of annual or bi-annual applications supplying as much or little as soil test and projected plant utilization would allow, given the analysis of nutrients in the manure (primarily managed around P and K). Aerated product originating from the feedyard would be very uniform, and support grower only needing to add whatever is necessary to supplement the baseline application(s), allowing for the concept of precision application (whether by hand in small areas or with equipment the grant could provide and share to test/prove the concept), and optimized for various plant species. Storage challenges would be greatly reduced or eliminated with this approach.

Vegetable Growers: This project will track the sales of vegetables grown under climate smart agricultural practices through the supply chain. Sales of these vegetables will be a decision of the participating farmers; however, the project team will encourage sales in both direct-to-consumer and retail stores such as grocery stores and ethnic grocers. This project will track vegetables sales in grocery stores to find whether the stores were able to receive premium prices due to the "climate smart agricultural practices" label. This data, along with the sales-to-the-consumer results will provide a clear understanding of the public support of climate smart agriculture.

- *Estimated economic benefits for participating producers including market returns.*

Economic benefits to farmers that implement climate smart agricultural practices will be assessed based on input, output, and price data received by tracking operations of the recruited vegetable farms in Ohio and Michigan. Data would be obtained from A&B Porteus feedlot to assess the cost of manure-based fertilizers that would, at least partially, replace commercial fertilizers. Current prices will be used to evaluate the farm- level economic impacts, and whole farm budgets would be developed.

An aspect of objective 3 of this project will scientifically test to verify if vegetables grown using climate smart technologies can be economically differentiated from vegetables grown using conventional practices. Data would be obtained from consumers and grocery stores that would be used to develop marketing brochures for "climate smart" vegetables. Farmer groups, particularly historically underserved farmers, will be trained in both production systems and marketing methods for them to help consumers better understand the impacts of climate smart agriculture and encourage them to buy products from such practices. Post-project potential will be realized through disseminating the results of this project to small/limited resource farmers and underserved farmers, as well as to cattle feedlots. The participating agriculturists will be surveyed to elicit their willingness to enter the realm of climate smart agriculture and develop climate smart commodities. The PD, CSU/OSU extension leads, and the contracted marketing expert will jointly develop these assessments.

PROJECT MANAGEMENT CAPACITY

This integrated project will leverage on multi-disciplinary collaborative teams from both academia and the private sector.

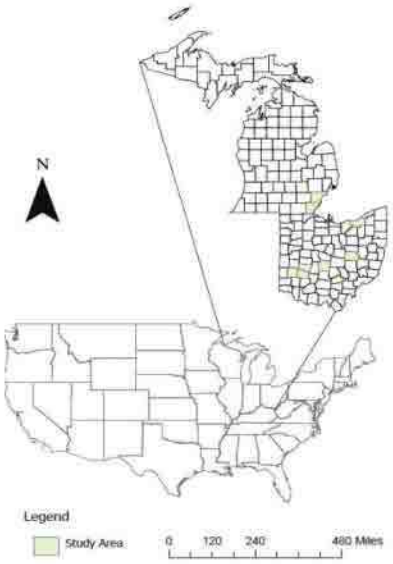
Academic Partnership

Central State University (CSU), Ohio's only Historically Black University (HBCU) and 1890 Land-Grant institution is engaged in advanced research in Agriculture, Engineering, Math, and Computer Sciences. Central State University is advancing the frontiers of knowledge in emerging transdisciplinary technology fields of Agriculture, Engineering, Math, and Computer Sciences. CSU work on this project will be led by faculty and engage students in the College of Science, Engineering, Technology and Agriculture (CESTA), where significant percentages of African Americans study and graduate in STEM fields. CSU's Agricultural Experiment Station has focused programs in Animal and Plant Systems and Natural Resources and Environmental Sciences. Along with research, CSU has a strong outreach arm, its 1890 Land-Grant Extension Service (CSUE), which engages rural and urban minorities and other socially disadvantaged farmers and communities. The project will leverage the extensive infrastructure and support systems of all the academic departments in the University's John W. Garland College of Engineering, Science, Technology and Agriculture (CESTA), the environmental assessment capabilities of Land grant researchers (from both universities) in specialty crops, GHG measurements sciences, Carbon Management and Sequestration.

CSU will hire CSU Extension program assistants, one Plant Nutrition Extension Coordinator and one Small Farm/Marketing Educator to assist with this project. These new staff will work closely with feedlots and farmers to create a practical CSAF demonstration and training program for CSU. They will help with all four objectives, provide technical support to vegetable growers (Objective 2), obtain data on production and environmental parameters (Objectives 1 and 2) and assist in marketing evaluations (Objective 3) and dissemination plans (Objective 4). Dr. Ibrahim Katampe, Professor of Chemistry and Assistant Director of Innovation and Technology Transfer will be the Project Lead. He will ensure that technology goals are met in a timely manner, with scientific integrity, and completed within budgeted amounts. As a research scientist, entrepreneur, and an innovator with about nine (9) United States Patents registered under his name. Prof. Katampe has several years of experience in both the private sector and academia, as an advocate for Innovative practices in STEM, who is a recipient of several awards including the prestigious Planet Africa Science and Technology Award by the planet Africa Group, Canada: the SOIN award for Technology Innovation by the Montgomery County, two-time recipient of NASA Faculty Research Fellowship, a member of the Center for the Advancement of STEM Leaders (CASL) just to mention a few. Since 2018, He has been involved delivering seminars for small farmers in developing sustainable strategies (OEFFA conferences), 1890 global food security and defense programs in both the USA and globally, developing strategic innovative relationships with local farmers in the community. Dr. Katampe has the capacity required to be project director by offering not only his scientific knowledge but also bring administration expertise as a strategic developer and project manager to help and support the delivery of the project goals. As the Associate Extension Administrator, Dr. Folck directs CSU's 1890 Land-Grant Extension Service with about 50 employees operating in 60 counties that have been targeted poverty areas in Ohio. Dr. Folck will manage Extension employees including the hired small farm manager/market coordinator to obtain marketing data from Objective 3 and develop the cost and income estimates of using CSAF practices vs. conventional vegetable farming.

CSU will collaborate with Ohio State University (OSU), an 1862 Land-Grant University, to support the implementation of this project. The OSU team will be led by Dr. David L. Marrison, Professor-Department of Extension & Extension Educator for Agriculture & Natural Resources for Coshocton County and by Dr. Ajay Shah, Director, Program for Bioproducts and the Environment (PROBE) (see letters of support). They will participate in testing and verification of the emerging technologies within a beef feedlot production life cycle to demonstrate achievable improvements in emissions and the net carbon footprint of producing beef products, raising producer awareness and acceptance of the potential practices, and encourage their adoption over time. They will also assist in training Extension staff to measure carbon sequestration and greenhouse gas emission data from the demonstration farms. The marketing specialist to be contracted will develop the focus group interviews and merchandising information outlined in Objective 3.

Private Sector Partnership



The development of this proposal included three strategic partners with an extensive network of collaborators to implement pilot programs effectively in the objective areas. The shapefile attached represents the regions affected directly by this project: Cuyahoga, Coshocton, Franklin, champaign, Clark, Miami, Montgomery and Xenia in Ohio, while Monroe and Wayne in Michigan

***Objective 1*: Feeding and Manure Management system in Feedlots:** A & B Porteus is currently a USDA-defined small and underserved family farmer. With a network of ranchers engaged in Feedlot Farm Management practices. They will play an active role in creating synergy between climate smart feedlots and small-scale vegetable farms Manure Management. A&B Porteus feedlot in Coshocton, Ohio, will be used to implement technologies that are intended to reduce greenhouse gas (GHG) emissions. This includes practices like developing cattle feed formulations that identify the opportunity to use "feed additives" that have a research-validated basis to lower enteric methane emissions. The project will also evaluate the benefits associated with replacing traditional feedlot cattle feeding strategies to more frequent feedings with a lesser amount of feed per occasion. This has the potential of reducing feed wastage with associated environmental problems. Finally, this project will evaluate the impacts of replacement of traditional diesel-powered tractor driven feed mixers and loaders with electrically powered robotic systems for mixing and distributing feed at animal feedlots. All federal/state/local regulations pertaining to manure management will be followed at the Farm.

Socially disadvantaged Farmer Partners: The grant will leverage the strategic positioning of CSU as the only 1890 Land- grant institution in Ohio and Michigan (especially the northwest boarder of Ohio) to recruit both rural and urban socially disadvantaged farmers as partners. We would like to enhance partnership to be inclusive of growers and appropriate groups that will be created with the funding of this grant opportunity. These will make their farms available for

Objective 2 of this project and participate in the project management and dissemination plan outlined in Objective 4. These farms sell their products through farmers markets and community-supported agriculture operations. Therefore, this project's goal of finding the consumer valuation of food grown under CSAF is crucial. The farmers will implement the CSAF practices on a portion of land they are currently using for their regular farming and will not involve ground disturbance practices below the plow zone.

Organization of Project

The **Project Management Team (PMT)** will be comprised of the project director (PD), Ibrahim Katampe, Professor of Chemistry and Assistant Director of Innovation and Technology Transfer, Dr. Alcinda Folck, CESTA/1890 Agriculture and Natural Resources Program Leader, Dr. Robert Korir, Research Assistant Professor, and Dr. David L. Marrison, Professor-Department of Extension & Extension Educator for Agriculture & Natural Resources. The PMT will also include the Authorized Representative from Brent Porteus LLC and from our strategic small farm partners. The PMT will meet monthly to coordinate activities and make decisions about activities and project's progress, budgets, and other issues.

RECRUITMENT AND FARMER's ASSISTANCE PLAN

The goal of this project is twofold:

a) To recruit, train and provide both technical and financial assistance to socially disadvantaged farmers to adopt the CSAF practices on their farms.
b) To verify and validate innovative CSAF practices that result in positive environmental and economic impacts for these limited resource Farmers.

The Project's innovative Small Farmer's Enrollment Strategy

Many of the socially disadvantaged farmers who will participate in this project rely on fruit and vegetable production, and to a lesser degree, livestock production, on limited land area. As an 1890 Land-Grant, Central State University Extension is experienced in serving and building relationships with underserved farmers in both rural and urban farms of Ohio and Michigan (see letters of support from farmers). The Extension service will recruit farmer participants from underserved farming groups. Both minority vegetable and beef cattle farmers will be engaged by this project. Since there are relatively few small and historically underserved farmers operating feedlots in Ohio (or the U.S.), we will encourage collaboration between select majority feedlot operators with socially disadvantaged livestock cattle (beef) farmers who will be the end-users of these climate smart manure management systems.

The Feed Stock (Specialty Crop) – Another innovative aspect of the project is robotic sensing and AI enhanced "feed bunk management" to improve animal performance (better feed efficiencies and rate of gain) providing economic savings and value. The project will primarily work with **corn/ soya crops** for developing the feed rations but will also explore the emerging Hemp seeds market **(corn/ hemp)** as feed ingredients. CSU has been given the license by the state of to cultivate this potential commercial crop. Objective 1 will measure the change in greenhouse gas emissions such as methane, from feedlots with modified feed rations and feed delivery systems.

Historically Underserved Student Involvement:

Historically underserved students are increasingly interested in agricultural and environmental sciences. CSU's College of Engineering, Science, Technology, and Agriculture (CESTA) has academic programs in agriculture from which this project will recruit eight students who will receive additional training on climate smart agriculture. These students will work with CSU Extension program assistants and will help in measuring and recording data related to carbo sequestration and greenhouse gas emissions. Data collection and instrument use training will be provided during Year 1 by Dr. Shah, Ohio State University. The students will learn about feedlot operations and vegetable farming, both the traditional/conventional methods and modern CSAF practices to make agriculture more environmentally friendly. The students will help make videos outlined in Objective 4 and learn about 1890 Land-Grant Extension activities and careers. The students will participate in results dissemination in Objective 4, where they will attend workshops and conferences.

On-Farm Activities:

In the first year of the project, our technical team will assess each enrolled farm using the COMET-Farm tool. This baseline customized assessment will identify the agronomic and farm management history and use key climate-smart practices. Data analytics will be used to identify additional management practices that can be deployed by the farmer to improve their GHG and carbon footprint over the project's life.

Farmers will plan and implement vegetable operations in multiple plots for three seasons per year for four years of operations. Plots will be planned according to the vegetables crops they will grow and the appropriate CSAF or conventional treatments used. Farmers will receive support from the project team to implement a series of climate smart practices such as no/reduced till, cover cropping, precision nutrient applications, etc. Farmers will also be involved in determining and establishing a direct-to-consumer "climate smart" market for vegetables. During the 5-year project, regular soil and environmental monitoring data will be collected, thus providing further opportunities for continued technical support.

Participants Technical Training:

Most of the technical assistance requirements will be in relation to the work with limited-resource and underserved farmers. They will receive hands-on training to implement climate smart practices on their farms. This training will be provided by project team members and two personnel hired by the project. A plant culture specialist and an extension associate, hired into this project, will work closely with the recruited farmers and provide necessary technical assistance. Upon their request, Dr. Shah and Mr. Marrison of the project team will provide additional technical assistance. M a r k e t i n g assistance needed will be provided by the strategic marketing team led by the PD.

Participation Incentives:

The minimum of 20 farms that enroll in this project will receive operating costs for up to one acre of vegetables for four years. This includes the cost of seeds, seedlings, soil amendments, fertilizers, pest and disease management supplies, irrigation and mulching supplies, equipment rental costs, and farm manager wages. Additionally, enrolled farmers will be direct beneficiaries of "climate smart" vegetables which is expected to differentiate their product line and expand their markets.

TIMELINE

	Year 1	Year 2	Year 3	Year 4	Year 5
Hiring CSU Extension staff	X				
Recruitment of feedlots and farms	X				
Objective 1	X	X	X	X	X
Objective 2		X	X	X	X
Objective 3				X	X
Objective 4				X	X

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Table 1. Required Quantitative Targets by Quarter (Cumulative)

MILESTONE	CATEGORY	MEASURED BY	Year 1				Year 2				Year 3				Year 4				Year 5			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Number of Partner Producers involved (Total 20)	Recruitment	Enrollment Data Base	3	3	4	5	5	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Number of underserved producers involved (Total 20)	Recruitment	Demographics Data	3	3	4	5	5	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Number of SQF of each producer involved (871200SQF, 20acres)	Recruitment	Demographics Data	130,680	130,680	174,240	217,800	217,800	871200	871200	871200	871200	871200	871200	871200	871200	871200	871200	871200	871200	871200	871200	871200
Percent of Producers Providing Compliance Documents	Recruitment	Demographics Data	10%	10%	20%	25%	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Percentage of Farm Demonstration Amount / based on compliance	Producer Payment	Payment amount	Enrollment and Assessment Yr.				25%	50%	75%	100%	25%	50%	75%	100%	25%	50%	75%	100%	25%	50%	75%	100%
CSAF Practice by Producers (compliance to 8 Practice codes)	Contractual	Payment amount	Enrollment and Assessment Yr.				2	4	6	8	2	4	6	8	2	4	6	8	2	4	6	8
Products supply to Demonstration Farms (timing will vary by producer)	Producer Incentive	Payment amount	(% of total yearly supply by the producer)				50%	75%	100%	0	50%	75%	100%	0	50%	75%	100%	0	50%	75%	100%	0
Financial Incentives provided to producers (% based on compliance)	Producer Incentive	Payment amount	Enrollment and Assessment Yr.				25%	50%	75%	100%	25%	50%	75%	100%	25%	50%	75%	100%	25%	50%	75%	100%
Types of commodities Incentivized (3 crops/producer)	Producer Incentive	Crop types / Producer	Enrollment and Assessment Yr.				5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Beef Farm NPK																				
Quantity of Manure provided to producers(Gallons/ acre -3crops)	Outcomes	Produced/gallon	based on soil and crop type				500	1000	1500	2000	500	1000	1500	2000	500	1000	1500	2000	500	1000	1500	2000
Cummulative GHG Benefits(CH4 reduced per 800 cattlehead)	Outcomes	MRV	0	0	0	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48
Cummulative GHG Benefits (Metric Tons of CO2e Reduced per 20acres)	Outcomes	MRV	0	0	0	0	0	0.25	0.5	0.5	0.5	0.75	1	1	1	1.25	1.5	1.5	1.5	1.75	2	2
Number of measurement tools utilized	Outcomes	MRV	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Type of Monitoring/ Verification /Reporting Method	Outcomes	MRV	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
MMRV Activities cost																						
Qty of produce type (tonnes/acre)	Marketing	survey	0	0	0	0	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800
Number of current marketing channels	Marketing	survey	Baseline producer survey data																			
Number of new marketing channels established	Marketing	survey	0	0	0	0	1	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3
Number of marketing channels* expanded	Marketing	survey	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Marketing channel Geography	Marketing	survey	0	0	0	0	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1
Numbers of Buyers	Marketing	survey	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2

Table 2. Other Required Benchmarks that may be quantitative or qualitative

Outreach, training and other technical assistance	Project Administration	# of workshops, town hall meetings	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	1	1	1	1
Other MMRV and supply chain traceability attributes	Project Administration	Farmer's feedback	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Other measurements of work related to marketing of commodities	Project Administration	Farmer's feedback	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2	1
Demonstrated engagement of major partners	Project Administration	comminity engagement	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Quarterly reimbursement request submitted to USDA	Project Administration	USDA reporting	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Climate-Smart Practices and Limitations

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

NRCS Practice Code	Practice Name
318	Short Term Storage of Animal Waste and Byproducts
328	Conservation Crop Rotation
340	Cover Crop
345	Residue and Tillage Management, Reduced Till
374	Energy Efficient Agricultural Operation
484	Mulching
590	Nutrient Management
592	Feed Management
595	Pest Management Conservation System

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."

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

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

Project Summary

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

Table 1. Project Summary elements

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

Partner Activities

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

Table 2. Partner Activities elements

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

Marketing Activities

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

Table 3. Marketing Activities elements

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

Producer Enrollment

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

Table 4. Producer Enrollment elements

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

Field Enrollment

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

Table 5. Field Enrollment elements

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

Farm Summary

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

Table 6. Farm Summary elements

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

Field Summary

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

Table 7. Field Summary elements

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

GHG Benefits - Alternate Modeled

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

Table 8. GHG Benefits – Alternate Modeled elements

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

GHG Benefits - Measured

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

Table 9. GHG Benefits - Measured data elements

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

Additional Environmental Benefits

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

Table 10. Additional Environmental Benefits elements

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

Supplemental Data Submission

Project MMRV Plan

Definition of MMRV elements:

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

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

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

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

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

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

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

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

Field modeled GHG benefit reports

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

Field direct measurement results

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

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

Data Descriptions

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

Unique IDs

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

Project Summary

Commodity type

Data element name: Commodity type

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: FSA commodity list

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Commodity sales

Data element name: Commodity sales

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Farms enrolled

Data element name: Farms enrolled

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG calculation methods

Data element name: GHG calculation methods

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Models
- Direct field measurements
- Both

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG cumulative calculation

Data element name: GHG cumulative calculation

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Models
- Direct field measurements
- Both

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative GHG benefits

Data element name: Cumulative GHG benefits

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative carbon stock

Data element name: Cumulative carbon stock

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative CO2 benefit

Data element name: Cumulative CO2 benefit

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative CH4 benefit

Data element name: Cumulative CH4 benefit

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CH4 reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative N20 benefit

Data element name: Cumulative N2O benefit

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons N2O reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Offsets produced

Data element name: Offsets produced

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Offsets sale

Data element name: Offsets sale

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

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

Data type: Text

Select multiple values: NA

Measurement unit: Name

Allowed values: Text

Logic: Respond if >0 to 'Offsets produced'

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Offsets price

Data element name: Offsets price

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars per metric ton

Allowed values: 0-500

Logic: Respond if >0 to 'Offsets produced'

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Insets produced

Data element name: Insets produced

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cost of on-farm TA

Data element name: Cost of on-farm TA

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

MMRV cost

Data element name: MMRV cost

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG monitoring method

Data element name: GHG monitoring 1-5

Reporting question: How did the project monitor GHG benefits?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG reporting method

Data element name: GHG reporting 1-5

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG verification method

Data element name: GHG verification method 1-5

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Partner Activities

Unique IDs	
Partner ID	Unique Project ID for each partner

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

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

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

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

Partnership start date

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

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

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

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

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

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

Partnership end date

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

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

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

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

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

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

New partnership

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

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

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

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

- Yes
- No
- I don't know

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

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

Partner total requested

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

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

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

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

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

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

Total match contribution

Data element name: Total match contribution

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

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

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Total match incentives

Data element name: Total match incentives

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

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

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Match type

Data element name: Match type 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Match amount

Data element name: Match amount 1-3

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

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

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Training type provided

Data element name: Training type 1-3 provided

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Activity by partner

Data element name: Activity 1-3 by partner

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Activity cost

Data element name: Activity cost 1-3	**Reporting question:** What is the value of the activities this organization has provided to the project?
Description: Cumulative (total) cost of each activity type that the organization has undertaken or offered from the start of the partnership to the end of the reporting quarter. Enter amounts for up to the top three (in dollar value) activity types. The worksheet provides three columns for this data element. Enter one value for each column. If fewer than 3 activity types are provided, leave unnecessary columns blank.	
Data type: Decimal	**Select multiple values**: NA
Measurement unit: Dollars	**Allowed values:** $0-$100,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Partner	**Data collection frequency:** Quarterly

Products supplied

Data element name: Products supplied	**Reporting question:** What products or supplies were provided to enrolled fields?
Description: Name(s) of products supplied to enrolled producers as incentives or matching contributions. Enter the name of each product, including its brand. Separate each product name with a comma. If no products or supplies were provided by the organization, leave the column blank.	
Data type: Text	**Select multiple values**: NA
Measurement unit: Name	**Allowed values:** Text
Logic: None – all respond	**Required:** Yes
Data collection level: Partner	**Data collection frequency:** Quarterly

Product source

Data element name: Product source	**Reporting question:** Which companies provided the supplies?
Description: Name of firm or company from which supplies were obtained.	
Data type: Text	**Select multiple values**: NA
Measurement unit: Name	**Allowed values:** Text
Logic: Respond if text entered for 'Products supplied'	**Required:** Yes
Data collection level: Partner	**Data collection frequency:** Quarterly

Marketing Activities

Commodity type

Data element name: Commodity type

Reporting question: What type of commodity is produced by the farmers enrolled in this project?

Description: List a single commodity produced or marketed through incentives from this project. If multiple commodities are produced by the project, use additional rows of the worksheet to report each commodity. Use the FSA commodity list in Appendix B and choose the commodity from the list.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: FSA commodity list

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Marketing channel type

Data element name: Marketing channel type

Reporting question: What type of marketing channel is used to sell this commodity?

Description: List a single type of marketing channel used to sell the commodity produced by farmers enrolled in the project. If a single commodity is marketed through multiple channels, use additional rows of the worksheet to report each combination of commodity and marketing channel. If "other" is chosen, use the additional column to enter the other marketing channel type(s) as free text.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Agricultural marketing board
- Biorefinery
- Commodity broker
- Direct to consumer
- Direct to institution
- Direct to restaurant
- Distributor (including grain elevators)
- Food hub or cooperative
- Food processor
- Non-food byproducts processor
- Retailer
- USDA
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Number of buyers

Data element name: Number of buyers

Reporting question: How many buyers are there in this marketing channel?

Description: List the number of individual firms or buyers in this marketing channel.

Data type: Integer

Select multiple values: No

Measurement unit: Count

Allowed values: 1-500

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Names of buyers

Data element name: Names of buyers	**Reporting question:** What are the names of all of the buyers in this marketing channel?
Description: Provide the names of all buyers in this marketing channel. Separate each name with a comma.	
Data type: Text	**Select multiple values**: NA
Measurement unit: Name	**Allowed values:** Text
Logic: None – all respond	**Required:** Yes
Data collection level: Project	**Data collection frequency:** Quarterly

Marketing channel geography

Data element name: Marketing channel geography	**Reporting question:** What is the primary geography of the marketing channel?
Description: The primary geography of the type of marketing channel. Primary geography means the scale at which most of the activity of buying and selling happens. Local means within a single state or directly neighboring states. Regional means within a five-to-ten state area. National means across the United States. International means specific locations outside of the United States. Global means across the world or not to a specific international location.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Local • Regional • National • Global
Logic: None – all respond	**Required:** Yes
Data collection level: Project	**Data collection frequency:** Quarterly

Value sold

Data element name: Value sold	**Reporting question:** What is the value of the commodity sold in this marketing channel?
Description: The dollar value of the commodity sold in this marketing channel this quarter (non-cumulative).	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Dollars	**Allowed values:** $1-$100,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Project	**Data collection frequency:** Quarterly

Volume sold

Data element name: Volume sold	**Reporting question:** What is the volume of the commodity sold in this marketing channel?
Description: The volume of the commodity sold in this marketing channel this quarter (non-cumulative).	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Number	**Allowed values:** 1-100,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Project	**Data collection frequency:** Quarterly

Volume sold unit

Data element name: Volume sold unit

Reporting question: What is the unit of volume?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Price premium

Data element name: Price premium

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

Allowed values: $0.01-$10,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Price premium unit

Data element name: Price premium unit

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Price premium to producer

Data element name: Price premium to producer

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Percent

Allowed values: 0-100

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Product differentiation method

Data element name: Product differentiation method 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Marketing method

Data element name: Marketing method 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Marketing channel identification method

Data element name: Marketing channel identification method 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Traceability method

Data element name: Traceability method 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Producer Enrollment

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

Producer data change

Data element name: Producer data change

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Re-enrollment

Producer start date

Data element name: Producer start date

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

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

Data type: Date

Select multiple values: NA

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

Producer name

Data element name: Producer name

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

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

Data type: Text

Select multiple values: NA

Measurement unit: NA

Allowed values: Text

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

Underserved status

Data element name: Underserved status

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: No

Data collection level: Producer

Data collection frequency: Initial enrollment

Total area

Data element name: Total area

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

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

Total crop area

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

Total livestock area

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

Total forest area

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

Livestock type

Data element name: Livestock type 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if 'Total livestock area' >0

Required: Yes

Data collection level: Producer

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

Livestock head

Data element name: Livestock head 1-3

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

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

Data type: Integer

Select multiple values: NA

Measurement unit: Head count

Allowed values: 1-10,000,000

Logic: Respond if 'Total livestock area' >0

Required: Yes

Data collection level: Producer

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

Organic farm

Data element name: Organic farm

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: No

Data collection level: Producer

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

Organic fields

Data element name: Organic fields

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Organic operation'

Required: No

Data collection level: Producer

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

Producer motivation

Data element name: Producer motivation

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

Producer outreach

Data element name: Producer outreach 1-3

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

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

Data type: List

Select multiple values: Yes

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF experience

Data element name: CSAF experience

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF federal funds

Data element name: CSAF federal funds

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'CSAF experience'

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF state or local funds

Data element name: CSAF state or local funds

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'CSAF experience'

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF nonprofit funds

Data element name: CSAF nonprofit funds

Reporting question: Were CSAF practices supported by nonprofit funds?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'CSAF experience'

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF market incentives

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

Field Enrollment

Unique IDs

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

Field data change

Data element name: Field data change

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Re-enrollment

Contract start date

Data element name: Contract start date

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

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

Data type: Date

Select multiple values: NA

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Total field area

Data element name: Total field area

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Acres

Allowed values: .01-500

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Commodity category

Data element name: Commodity category	**Reporting question:** What category of commodity(ies) is (are) produced from this field?
Description: Category of commodity(ies) produced in field enrolled in the project	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Crops • Livestock • Trees • Crops and livestock • Crops and trees • Livestock and trees • Crops, livestock and trees
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Initial enrollment

Commodity type

Data element name: Commodity type	**Reporting question:** What type of commodity is produced from this field?
Description: Type of commodity produced in field enrolled in the project. See full list in Appendix B. The worksheet provides a drop-down list of the allowed values. Choose the appropriate value. Enter additional commodities in subsequent rows.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** FSA commodity list
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Initial enrollment

Baseline yield

Data element name: Baseline yield	**Reporting question:** What is the baseline yield of this field?
Description: Average annual yield of commodity in 3 years prior to enrollment. Provide yield for the enrolled field if possible. If not at field level, provide average annual yield for the specific commodity for the operation.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Production per acre or animal	**Allowed values:** .01-100,000
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Initial enrollment

Baseline yield unit

Data element name: Baseline yield unit

Reporting question: Baseline yield unit

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Baseline yield location

Data element name: Baseline yield location

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Enrolled field
- Whole operation
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Field land use

Data element name: Field land use

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Field irrigated

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

Field tillage

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

Practice past extent - farm

Data element name: Practice past extent - farm

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Field any CSAF practice

Data element name: Field any CSAF practice

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice past use - this field

Data element name: Practice past use - this field

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice type

Data element name: Practice type 1-7

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: See list in Appendix A

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice standard

Data element name: Practice standard 1-7

Reporting question: What standard does the CSAF practice follow?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- NRCS
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Planned practice implementation year

Data element name: Practice 1-7 implementation year

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

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

Data type: Integer

Select multiple values: No

Measurement unit: Year

Allowed values: 2022-2030

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice extent

Data element name: Practice 1-7 extent

Reporting question: To what extent is the practice implemented?

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

Data type: Decimal

Select multiple values: No

Measurement unit: Extent

Allowed values: .01-100,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

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

CSAF Practice Sub-questions

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

Farm Summary

Unique IDs

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

Producer TA received

Data element name: Producer TA received 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Producer incentive amount

Data element name: Producer incentive amount

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

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

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Incentive reason

Data element name: Incentive reason 1-4

Reporting question: Why were incentives provided to this producer?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Incentive structure

Data element name: Incentive structure 1-4

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Incentive type

Data element name: Incentive type 1-4

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on enrollment

Data element name: Payment on enrollment

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on implementation

Data element name: Payment on implementation

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on harvest

Data element name: Payment on harvest

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on MMRV

Data element name: Payment on MMRV

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on sale

Data element name: Payment on sale

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Field Summary

Unique IDs

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

Commodity type

Data element name: Commodity type

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: FSA commodity list

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Practice type

Data element name: Field practice type 1-7

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: See list in Appendix A

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Date practice complete

Data element name: Date practice complete

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

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

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Contract end date

Data element name: Contract end date

Reporting question: Contract end date

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

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

MMRV assistance provided

Data element name: MMRV assistance provided

Reporting question: Was MMRV assistance provided?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Marketing assistance provided

Data element name: Marketing assistance provided

Reporting question: Was marketing assistance provided?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Incentive per acre or head

Data element name: Incentive per acre or head

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field commodity value

Data element name: Field commodity value	**Reporting question:** What is the value of the commodity produced on the enrolled field?
Description: The dollar value of the commodity produced on the enrolled field.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Dollars	**Allowed values:** $1-$10,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Quarterly

Field commodity volume

Data element name: Field commodity volume	**Reporting question:** What is the volume of commodity produced on the enrolled field?
Description: The volume of the commodity produced on the enrolled field	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Number	**Allowed values:** 1-10,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Quarterly

Field commodity volume unit

Data element name: Field commodity volume unit	**Reporting question:** What is the unit of volume?
Description: The unit associated with the volume of the commodity produced on the enrolled field. If "other" is chosen, enter the appropriate value in the additional column.	
Data type: List	**Select multiple values**: No
Measurement unit: Category	**Allowed values:** • Bushels • Carcass weight pounds • Gallons • Head • Linear feet • Liveweight pounds • Pounds • Tons • Other (specify)
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Quarterly

Cost of implementation

Data element name: Cost of implementation	**Reporting question:** What is the cost of practice implementation in the field?
Description: Total annual estimated cost per unit of implementing the practice(s) in the enrolled field.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Dollars	**Allowed values:** $1-$10,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Quarterly

Cost unit

Data element name: Cost unit

Reporting question: What is the unit for cost?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Cost coverage

Data element name: Cost coverage

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

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

Data type: Integer

Select multiple values: No

Measurement unit: Percent

Allowed values: 0-100

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG monitoring

Data element name: Field GHG monitoring 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG reporting

Data element name: Field GHG reporting 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG verification

Data element name: Field GHG verification 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG calculations

Data element name: Field GHG calculations

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Models
- Direct field measurements
- Both

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official GHG calculation

Data element name: Field official GHG calculation

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Models
- Direct field measurements

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official GHG ER

Data element name: Field official GHG emission reductions

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official carbon stock

Data element name: Field official carbon stock

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official CO2 ER

Data element name: Field official CO2 emission reductions	**Reporting question:** What are the estimated total CO2 emission reductions in this field?
Description: Estimated total carbon dioxide emission reductions based on practice implementation in this field that are reported as part of the project's aggregate impact. This data element must be entered upon practice completion or annually, as appropriate.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons CO_2	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Quarterly

Field official CH4 ER

Data element name: Field official CH4 emission reductions	**Reporting question:** What are the estimated total CH4 emission reductions in this field?
Description: Estimated total methane emission reductions based on practice implementation in this field that are reported as part of the project's aggregate impact. This data element must be entered upon practice completion or annually, as appropriate. Conversion rate is one ton of CH_4 = 25 tons of CO_2eq.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons CH4 reduced in CO_2eq	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Quarterly

Field official N20 ER

Data element name: Field official N2O emission reductions	**Reporting question:** What are the estimated total N2O emission reductions in this field?
Description: Estimated total nitrous oxide emission reductions based on practice implementation in this field that are reported as part of the project's aggregate impact. This data element must be entered upon practice completion or annually, as appropriate. Conversion rate is one ton of N_2O = 298 tons of CO_2eq.	
Data type: Decimal	**Select multiple values**: No
Measurement unit: Metric tons N2O reduced in CO_2eq	**Allowed values:** 0-10,000,000
Logic: None – all respond	**Required:** Yes
Data collection level: Field	**Data collection frequency:** Quarterly

Field offsets produced

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

Field insets produced

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

Other field measurement

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

GHG Benefits - Alternate Modeled

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

Commodity type

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

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

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

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

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

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

Practice type

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

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

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

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

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

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

GHG model

Data element name: GHG model

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: If project calculates GHG benefits using multiple methods

Data collection level: Field

Data collection frequency: Annual

Model start date

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

Model end date

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

Total GHG benefits estimated

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

Total carbon stock estimated

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

Total CO2 estimated

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

Total CH4 estimated

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

Total field N20 estimated

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

GHG Benefits - Measured

Unique IDs

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

GHG measurement method

Data element name: GHG measurement method

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Lab name

Data element name: Lab name

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

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

Data type: Text

Select multiple values: No

Measurement unit: NA

Allowed values: Free text

Logic: None – all respond

Required: If applicable

Data collection level: Field

Data collection frequency: Annual

Measurement start date

Data element name: Measurement start date

Reporting question: On what date did the measurement start?

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

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Measurement end date

Data element name: Measurement end date

Reporting question: On what date did the measurement end?

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

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Total CO2 reduction calculated

Data element name: Total CO2 reduction calculated

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2

Allowed values: 0-10,000,000

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Total field carbon stock measured

Data element name: Total field carbon stock measured

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Total CH4 reduction calculated

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

Total N20 reduction calculated

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

Soil sample result

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

Soil sample result unit

Data element name: Soil sample result unit

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: If a project conducts soil samples in this field

Data collection level: Field

Data collection frequency: Annual

Measurement type

Data element name: Measurement type

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: If a project conducts soil samples in this field

Data collection level: Field

Data collection frequency: Annual

Additional Environmental Benefits

Unique IDs

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

Environmental benefits

Data element name: Environmental benefits

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss

Data element name: Reduction in nitrogen loss

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss amount

Data element name: Reduction in nitrogen loss amount

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

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

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss amount unit

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

Reduction in nitrogen loss purpose

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

Reduction in phosphorus loss

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

Reduction in phosphorus loss amount

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

Reduction in phosphorus loss amount unit

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

Reduction in phosphorus loss purpose

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

Other water quality

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

Other water quality type

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

Other water quality amount

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

Other water quality amount unit

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

Other water quality purpose

Data element name: Other water quality purpose

Reporting question: What is the purpose of tracking other water quality benefits?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if yes to 'Other water quality'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Water quantity

Data element name: Water quantity

Reporting question: Is water conservation being tracked in the field?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Water quantity amount

Data element name: Water quantity amount

Reporting question: How much water conservation has been measured in the field?

Description: Total amount of water conservation or reduction that is measured in the field.

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Water quantity'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Water quantity amount unit

Data element name: Water quantity amount unit

Reporting question: What is the unit for the amount of water conservation measured in the field?

Description: Unit for the total amount of water conservation or reduced use that is measured and reported in the enrolled field. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Acre-feet
- Cubic feet
- Other (specify)

Logic: Respond if yes to 'Water quantity'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Water quantity purpose

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

Reduced erosion

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

Reduced erosion amount

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

Reduced erosion amount unit

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

Reduced erosion purpose

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

Reduced energy use

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

Reduced energy use amount

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

Reduced energy use amount unit

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

Reduced energy use purpose

Data element name: Reduced energy use purpose

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if yes to 'Reduced energy use'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion

Data element name: Avoided land conversion

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion amount

Data element name: Avoided land conversion amount

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Avoided land conversion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion amount unit

Data element name: Avoided land conversion unit

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Acres
- Other (specify)

Logic: Respond if yes to 'Avoided land conversion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion purpose

Data element name: Avoided land conversion purpose

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if yes to 'Avoided land conversion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat

Data element name: Improved wildlife habitat

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat amount

Data element name: Improved wildlife habitat amount

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Improved wildlife habitat'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat amount unit

Data element name: Improved wildlife habitat unit

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Acres
- Linear feet
- Other (specify)

Logic: Respond if yes to 'Improved wildlife habitat'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

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

CSAF Practice Sub-questions

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

Table 11. Follow-on questions for select CSAF practices

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

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

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

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

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

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

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

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

Appendix A: Climate-smart Agriculture and Forestry Practices

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

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

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

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

Appendix B: Commodity List

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

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

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

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

I. Overarching Statement

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

II. Eligibility and Highly Erodible Lands and Wetlands Compliance

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

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

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

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

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

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

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

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

III. Other Environmental and Cultural Resources Reviews

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

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

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

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

IV. Producer Benefits

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

V. Producer Data Protection and Disclosure

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

VI. Other Data and Reporting Requirements

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

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

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

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

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

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

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

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

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

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

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

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

VII. Competition and Anti-Competitive Practices

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

VIII. Suspension and Disbarment

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

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

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

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

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

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

X. Non-Disparagement

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