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:
NR233A750004G098		Date of final signature - 09/14/2028	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	TENNESSEE STATE UNIVERSITY 3500 JOHN A MERRITT BLVD NASHVILLE TN 37209-1561 UEI Number / DUNS Number: N63ZMY7UETA3 / 108814179 EIN:

7. NRCS Program Contact	8. NRCS Administrative Contact	9. Recipient Program Contact	10. Recipient Administrative Contact
Name: James Denton	Name: MICHELE DEVANEY	Name: EMMANUEL OMONDI	Name: Phyllis Danner
(b)(6)			

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

15. Project Title/ Description: Expands markets for climate-smart hemp in Tennessee and supports farmers 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	$4,972,898.00	$0.00
Additional funds total	$0.00	$0.00
Grand total	$4,972,898.00	$0.00

18. Approved Budget

Personnel	$663,930.00	Fringe Benefits	$35,608.00
Travel	$165,703.00	Equipment	$0.00
Supplies	$190,808.00	Contractual	$414,800.00
Construction	$0.00	Other	$3,502,049.00
Total Direct Cost	$4,696,663.00	Total Indirect Cost	$276,235.00
		Total Non-Federal Funds	$0.00
		Total Federal Funds Awarded	$4,972,898.00
		Total Approved Budget	$4,972,898.00

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

Name and Title of Authorized Government Representative KATINA HANSON Acting Senior Advisor for Climate-Smart Commodities	Signature KATINA HANSON Digitally signed by KATINA HANSON Date: 2023.09.12 13:54:58 -04'00'	Date
Name and Title of Authorized Recipient Representative QUINCY QUICK Assistant VP of Research and Sponsore Programs	Signature Quincy Quick	Date 9/11/2023

NONDISCRIMINATION STATEMENT

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

PRIVACY ACT STATEMENT

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

Statement of Work

Purpose

The purpose of this agreement, between the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) and Tennessee 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 $4,972,898.00

TOTAL FEDERAL FUNDS $4,972,898.00
PERSONNEL $544,205.00
FRINGE BENEFITS $29,187.00
TRAVEL $135,822.00
EQUIPMENT $0.00
SUPPLIES $156,400.00
CONTRACTUAL $340,000.00
CONSTRUCTION $0.00
OTHER $3,491,049.00 (includes PRODUCER INCENTIVES $450,000.00)
TOTAL DIRECT COSTS $4,696,663.00
INDIRECT COSTS $276,235.00

TOTAL NON-FEDERAL FUNDS $0.00
PERSONNEL $0.00
FRINGE BENEFITS $0.00
TRAVEL $0.00
EQUIPMENT $0.00
SUPPLIES $0.00
CONTRACTUAL $0.00
CONSTRUCTION $0.00
OTHER $0.00 (includes PRODUCER INCENTIVES $0.00)
TOTAL DIRECT COSTS $0.00
INDIRECT COSTS $0.00

Recipient has an approved Negotiated Indirect Cost Rate Agreement (NICRA) with a rate of 22 percent and a base of modified total direct costs ($1,255,614.00), consisting of all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel and up to the first $25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subaward in excess of $25,000which is the base of modified total direct costs.

Ensure that equipment purchased with Federal funds is 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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Withheld pursuant to exemption

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of the Freedom of Information and Privacy Act

Climate-Smart Fiber Hemp: A Versatile Thread Connecting the Nation's Underserved Farmers, Climate Change Mitigation and Novel Market Opportunities

1. Executive Summary

The Climate-Smart Fiber Hemp Project (Project) is a collaborative initiative to expand the production of industrial hemp as a climate-smart commodity, evaluate its greenhouse gas benefits (GHG), and promote the value of market development to a cross-section of production agriculture, including small, medium, and/or historically underserved producers across the state of Tennessee. The Project is a partnership bringing together Tennessee State University (TSU), Hemp Alliance of Tennessee (HAT), University of Tennessee (UT), and Tennessee Department of Agriculture (TDA) to address the global challenges posed by climate change.

The key initiative within this Project, is the plan to promote market development of industrial hemp supply as a climate-smart commodity through incentives to underserved Tennessee growers enrolled in our pilot production Program (Program). The Program will engender equity and empower producers through financial and technical assistance to embrace climate-smart practices in developing a resilient market for supply to end application markets.

In addition to the production Program, the Project focuses on quantifying environmental, soil health and climatic impacts. Within this objective, supplemental assessment of suitable genetics and best management agronomic practices, processing, and supply-chain economics will help growers make the most informed decisions about industrial hemp production, reducing inequity. Additional market analysis along the supply-chain, financial analysis and market studies will inform constituent intelligence in policy, regulations, and material specifications necessary to develop a more resilient and scalable market. Expected outcomes from the Project include the following:

- Delivering approximately 1,500 tons of hemp fiber on 500 acres, emphasizing small, medium and/or historically underserved producers, and processing it into raw material for secondary and end-user manufacturing in bioplastics, fabrics, and other industrial materials, creating a pathway to scale operations, improve efficiency, and access new end-user markets to redeem more benefits to producers in Tennessee and the Southeast
- Monitoring, measuring, recording and verifying on-farm soil carbon (C) storage and sequestration, soil health assessment, and GHG reductions
- Developing consensus-based technical standards and specifications for hemp fiber materials; with the development of a sustainability certification program that will be meaningful, truly address sustainability interests, and advance innovation
- Evaluating cost-effectiveness of product value chains based on plant varieties, processing methods, and variations in agronomy and infrastructure
- Consistent with the *Justice40 Initiative* our Project plan is focused on serving small and underserved producers both as incentivized program participants receiving direct subsidies, but also in the targeted dissemination of insights resultant from virtually all program investigation through technical assistance outreach
- Producer awareness of market opportunities for industrial hemp. Education regarding best practices for production and financial management to support economically sustainable and thriving small and minority farms
- Insights into the viability of and economic returns to producers moving up the supply chain capturing value through processing

- Manufacturer awareness of industrial hemp as a climate-smart commodity, the qualification of hemp as a viable input to their production, and the economic, social, and environmental value of building a sustainable end market for industrial hemp
- Market development of end applications for industrial hemp. Identification of optimal product market candidates on which to focus supply chain capacity growth, and data intelligence to economically scale consistent with constraints of a dynamic market environment

Project funds will be expended for hemp production, focused on underserved farmers, on technical assistance and outreach, assessment of best management climate-smart production strategies, carbon accounting, development of technical standards/specifications, value-chain analysis, and promotion of climate-smart hemp fiber product markets.

On-station and on-farm trials will also be established to evaluate best management climate-smart agronomic practices to sustainably grow fiber hemp, including evaluation of ideal genetics for Tennessee, inclusion of hemp in existing grower crop rotations, cover cropping and reduced tillage strategies, and assessment of varieties by nitrogen fertilizer requirements. Soil health assessment and soil C storage, C sequestration in the soil and crop biomass, and GHC analysis will all be quantified. Four on-station trials and four on-farm trials will be established at TSU, UT, and within the farms of selected hemp growers for this Project. Results from these trials, including a specific objective on economic analysis of this initiative, will provide a proxy for sustainable and climate-sensitive agricultural production strategies for the State of Tennessee in particular, and the rest of the country in general.

1A. Contact Information

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Tennessee State University, 204A Farrell-Westbrook Building, 3500 John A. Merritt Blvd., Nashville, TN 37209, Tel: (615) 963-5830; Email: eomondi@tnstate.edu

1B. Project Partners

- Tennessee State University (TSU), a public historically black land-grant university in Nashville, Tennessee. Role: Primary Awardee, Fiduciary, Project Director, Program Recruitment, Training and Technical Assistance
- Hemp Alliance of Tennessee (HAT), a nonprofit trade association focused on developing a thriving hemp industry in the state of Tennessee. Role: Promotion and Market Development, Market and Financial Research, Program Recruitment and Outreach
- University of Tennessee Institute of Agriculture (UT), a public land-grant university in Knoxville, Tennessee that provides teaching, discovery, and service through the Herbert College of Agriculture, UT AgResearch, and UT Extension for Tennessee and beyond. Role: Agronomy, Soil Science, Agricultural Economics and Market Analysis
- Tennessee Department of Agriculture (TDA), a Cabinet-level agency in the government of Tennessee, whose mission is to serve all the citizens of Tennessee through provision of options for responsible use of agricultural and forest resources, developing economic opportunities, safeguarding food and fiber, and ensuring equity in the marketplace. Role: Market Promotion and Development, Producer Program Oversight and Outreach
- The Tennessee New Farmer Academy (TNFA), based at Tennessee State University. Role: Underserved Program Recruitment, Promotion, Training and Technical Assistance

1C. Underserved/Minority-Focused Partners

Tennessee State University (TSU), a historically black land grant institution, provides training, technical support and economic and environmentally sustainable assistance to marginalized and rural communities across the State of Tennessee.

The Tennessee New Farmer Academy (TNFA) at TSU is a seven-month certificate program designed for new and beginning farmers as well as those transitioning into agriculture from other fields such as military service. The program addresses daunting challenges faced by new and beginning farmers in general, and historically underserved producers, minorities, women and veterans in particular, through comprehensive education and training to build sustainable agriculture businesses.

The Project Director (PD) of this Project is also the PD of a recently funded USDA-NIFA Beginning Farmer and Rancher Development Program [BFRDP (Award number 2020-70017-32737)] that targets military veterans, beginning farmers/ranchers and socially disadvantaged farmers and ranchers with limited resources in the same way as the New Farmer Academy but with a sharper focus on industrial hemp production training and outreach. Among other objectives, the TSU BFRDP program aims to educate beginner farmers on best management practices for industrial hemp (and other selected crops) and livestock enterprises, crop certification, entrepreneurship development, business planning and financial management. The BFRDP project targets the same category of farmers including those who have operated a farm or ranch for less than 10 years, are new to agriculture, new hemp producers, and those who wish to transition into agriculture from other vocations. This experience further strengthens our capacity to recruit growers, especially from the underserved members of the community, to participate in this Project.

1.D. Compelling Need for the Project

Industrial hemp (*Cannabis sativa* L.) is considered a new crop for the United States after many years of Federal legislation outlawing the genus *Cannabis* L. The 2014 Agricultural Act ("farm bill", P.L. 113-79, Sec. 7606) provided opportunities for university institutions, like 1890 Institutions such as TSU, to be at the forefront of hemp cultivation and marketing research and extension. These reforms caused resurgence in hemp production in the U.S. in general, with Tennessee being among the leading states in adoption of industrial hemp as a specialty crop. More than 36 states have passed legislation in support of hemp and the number continues to grow. However, there is evidence that this extraordinary support for the "new crop" may have resulted in predictably excessive initial enthusiasm and adoption by growers that is beginning to dissipate as the legislative, production, and market realities become better understood.

Consistent with the Director of the NEC's comments on an Industrial Strategy (Deese, 2022), our Project examines the failure of the free market to meet national objectives regarding equality and the environment, proposes that development of the industrial hemp market could help meet those objectives, and produces insights into the science and economic impacts of further development. Our Project supports sustainability of a hemp market and its ability to meet national objectives on the environment. The Project supports the national objective on equality by promoting the climate, business and market insights within the small, minority and underserved farmer community through creation of resources, education and assistance complementing the existing state and local efforts of our partners, HAT, TSU, UT, and TDA.

This Project addresses the growing global challenges posed by climate change, with increasing negative impacts being felt including increasing temperatures, weather variability, shifting agroecosystem boundaries, invasive crops and pests, and more frequent extreme weather events. On farms, these impacts are resulting in reduced crop yields, reduced nutritional quality of major cereals, and lowering livestock productivity. These effects are especially severe among underserved communities. There is therefore a compelling need for substantial investments in

adaptation strategies to mitigate the most extreme effects of climate change, maintain current agricultural yields and to achieve production and quality increases to meet demand.

Paradoxically, agriculture is a major part of the climate problem, currently generating 19–29% of total greenhouse gas (GHG) emissions (Bank, 2021), through food storage, agrochemical manufacturing and use, and farming techniques such as tillage. Agricultural practices that enhance yields while improving the health of the soil and increasing resilience to climate change are required. Industrial hemp, a versatile, productive and widely adapted crop has many potential applications in automotive, plastics, textiles, paper/pulp, and building materials industries. Because of its rapid growth rate (4–5 months crop cycle) and ability to capture 2–3 times the carbon dioxide per acre per year compared to a forest (Tripathi and Kumar, 2022), coupled with an estimated 25,000 different applications, hemp presents an excellent opportunity for sustainable agriculture and climate change mitigation (Pervaiz and Sain, 2003; Tripathi and Kumar, 2022). There are substantial unexplored environmental (climate-smart) advantages of using hemp-based natural fiber mat thermoplastics (NMT) compared with commercially available glass fiber composites used in automobiles. While studies have shown that hemp-based NMT have comparable or better strength properties than conventional flax-based thermoplastics, the carbon capture potential of hemp is far more superior. Carbon (C) sequestration and storage by hemp crop through photosynthesis has been estimated as equivalent to 325 kg carbon per metric ton of hemp-based composite stored by the product during its useful life (Pervaiz and Sain, 2003). Net C sequestration by industrial hemp crop has been estimated to be about 0.67 ton/ha/year, which is comparable to all USA urban trees and close to natural forests (Pervaiz and Sain, 2003). It has been suggested that a net saving of 50,000 MJ (approximately 3 tons of carbon dioxide emissions) per ton of thermoplastics can be achieved by replacing 30% glass fiber reinforcements with 65% hemp fiber (Pervaiz and Sain, 2003).

Industrial hemp, as a new crop for Tennessee, offers the potential to provide an alternative to traditional commodities such as corn, cotton, soybean, and wheat while providing soil improvements as a rotational/cover crop (Malone and Gomez, 2019). Hemp is also beneficial to polluted soils as it pulls toxins and heavy metals out of the soil (Ahmad et al., 2016; Rheay et al., 2021). Previous studies have found positive correlations between hemp yield and nitrogen (N) fertility (Papastylianou et al., 2018, Black and Vessel, 1945). However, higher rates of N have promoted thinning due to rapid growth resulting in decreased fiber strength and a reduction in fiber yield (Black and Vessel, 1945). Thus, it is important to investigate the response of various cultivars of fiber hemp to varying rates of N fertilization to determine optimal yield while maintaining high quality fiber materials.

The overall goal of this Project is to create opportunities for underserved Tennessee growers to grow industrial hemp specifically targeting the automobile industry while monitoring and quantifying its environmental, soil health and climatic impacts compared to current popular commodities. The broad objective of the Project is to conduct supplemental assessment of suitable genetics, best management agronomic practices, processing, and markets to help growers avoid costly mistakes, make the most informed decisions about industrial hemp production, increase farm revenues and mitigate climate change. Specific objectives include the following:

- Develop a pilot program for industrial hemp for fiber to be produced, decorticated, and delivered to a market in TN.
- Understand the climate-smart potential (greenhouse gas emissions and carbon sequestration) of industrial hemp as grown in rotation with common commodities.
- Investigate the impact of nitrogen fertility and cultivar selection on yield and performance in TN.
- Determine economic feasibility of fiber hemp as related to profitability, viability of hemp-based products for the automotive, plastics, textiles, paper/pulp, and building

materials industries, and analyses of possible locations for decortication and final market facilities.

- Disseminate useful production information to fiber hemp producers through field days, Extension publications, farm visits, and other programmatic activities.

1.E. Minimizing Transaction Costs

The proposed Project subsidizes costs at the production and processing levels to provide raw materials as an incentive to develop the market. Material specifications will be defined, which enhances the ability of the producer and supply chain to deliver raw materials. This will be an iterative process over the course of the study focused on refining production and processing to identify opportunities and eliminate barriers to viable markets across the spectrum of end product applications.

Income from the Program is not expected at the termination of the Program and all grant funds will be expended exclusively for direct Program activities. All raw materials are anticipated to be fully consumed in product application assessment and development with our corporate partners. Any excess product not consumed by corporate partners will be sold to the market with all resulting revenues reinvested exclusively into Project activities (additional acreage of production, additional processing, and additional market analysis and development).

Funding allocations are designed to fully remove risks to farmers producing fiber hemp, by covering 100% of production costs. This feature enables farmers to shift acreage from other crops or add acreage without speculation and incentivize their best effort to produce a successful crop in an efficient manner. An additional incentive payment to support positive returns to production is made to Program participants with delivery to processing. Program participants may lose eligibility for failure to perform in an adequate manner. The Project also provides technical assistance to farmers who are new to hemp production or to farming in general, thus reducing crop failure risk.

Funding also helps cover the cost of primary processing, by covering the expenses of centralized facilities, by providing local processing services, or by engaging the producer in alternative processing practices under investigation (ensileage) with a focus on minimizing costs given those options. The need for a geographical concentration of participating farmers and the value of producers retaining a greater sale of final market values by control of processing will be evaluated.

1.F. Reducing Producer Barriers to Climate-Smart Commodities

Besides production risks which our Program addresses, a key barrier to producing hemp fiber as a CSAF practice is the lack of primary processing required to bring their crop to market. To overcome this barrier, the Project allocates a significant portion of the award to cover the cost of primary processing of hemp as a fiber crop. This effort will be implemented through a multi-faceted approach, utilizing different methods appropriate to downstream product specifications, presence of existing infrastructure, and geographic concentration of participating farmers. The Project will also evaluate the cost-effectiveness of these different approaches and refine/adjust their application over the course of the Project. One such approach is the sharing of early-stage hemp processing such as specialized harvesting machines and decortication (generating high value separate hurd and bast fiber material streams), through farmer-owned cooperatives.

Benefits of localized supply chain: There are significant climate and economic benefits to an industrial hemp supply chain that is grown, processed, and manufactured all within the same area. Raw material shipping costs from farms growing hemp fiber to initial processing and then to final end manufacturing users are minimized. Overall profitability is improved, and timing issues are ameliorated. Greenhouse gas emissions are also reduced because of the close proximity of farms to immediate processing and end users.

1.G. Geography Focus

Located in the heart of the climate-transition zone, Tennessee offers flexible weather conditions for crop production. It is a leader in using farm soil conservation practices with 80% of the arable land in no-tillage (NT) cultivation, the highest percentage in the US (USDA-NASS, 2017). However, despite such conservation practices, the hot and humid climate limits soil C sequestration that is often restricted to shallow depths and vulnerable to losses (Jagadamma et al., 2019). Therefore, Tennessee row crop producers are now enthusiastic about innovative, more stable, ways of deep soil C sequestration based on fiber hemp's rapid growth and deep-rooting characteristics. Due to a relatively short growing season, hemp for fiber can be easily incorporated into existing rotations while its limited N requirement may also further reduce emissions of potent GHGs such as nitrous oxide (N_2O), thus providing a net CO_2 equivalent emission benefit. Additionally, growing interest and new market opportunities for using hemp fiber products in the automotive and other regional industries means Tennessee is an optimal location for projects that supports local sourcing of raw material and economic growth.

1.H. Project Management Capacity

Our Land Grant partners (TSU and UT) have a long-standing relationship working with a wide range of producers with a strong focus on underserved farmers. These institutions have institutional capacity in managing large grants involving multiple partners. The TSU and UT partnership offer strength in agronomy (Drs. Omondi and Richmond) - a critical aspect when including a non-traditional crop in a traditional rotation, soil health and quantifying soil C and GHG dynamics (Drs. Saha, Omondi, Hui, and Li). Our Project presents a strong focus on evaluating economic feasibility and farm profitability (Dr. Hughes) and optimizing spatial concentration of hemp production and processing based on potential market development opportunities to minimize production costs (Dr. Yu and Harry Crissy).

HAT offers expertise in project management of market studies, economic and financial analysis, technological implementations to support data intelligence gathering and the marketing and promotion of information to support market development. Key individual contributors of HAT bring decades of experience leading private investments in innovative new markets, identifying and coordinating best in-class contributors to reach targeted outcomes.

The TDA is uniquely positioned to assist in this Project by managing the payments to Tennessee farmers to offset the cost of production. TDA has the infrastructure and expertise already in place to take on this role. As a state agency, TDA will serve as a neutral party, which is critical when handling payments of significant amounts of money directly to Tennessee farmers. TDA has participated in a similar fashion for other USDA grants in the past and is committed to seeing this Project through completion.

2. Plan to Pilot Climate-Smart Fiber Hemp Production

2.A. Description of CSAF Practices to be Deployed

This proposal incorporates a system approach to enhance climate resilience and GHG emissions mitigation potential of production farms by incorporating fiber hemp in existing rotations. By leveraging strong growers' network with UT and TSU research and extension teams, TDA, and HAT's leadership in promoting hemp production, we seek to expand the production of industrial hemp as a climate-smart commodity across ~500 acres of working farmland for row crop producing areas in TN over the Project duration. Through this collaboration platform, we will implement larger-scale on-farm (farmers' fields) and plot-scale on-station (University experiment stations) trials in exploring innovative ways of introducing and sustainably managing fiber hemp in TN crop rotations to deliver enhanced soil C sequestration and plant biomass C capture, soil health, and GHG mitigation benefits. The proposed work integrates fiber hemp in cover crop-based continuous or rotational NT corn-

soybean rotations and opportunities to reduce N fertilization needs in hemp by using legume cover crops. The preceding agronomic practices are known to improve soil health and provide climate benefits in traditional cropping systems and introducing fiber hemp in rotation should increase such benefits.

Climate-smart hemp rotational study: On-farm and on-station trials will be designed to investigate the impact of introducing fiber hemp production into NT-based corn-soybean and cover crop rotations in middle and west TN locations. Four on-farm trials (two in middle TN and two in west TN) will be conducted using a field-scale approach. Cooperating growers will dedicate a field for two cycles of two-year rotations for the four-year duration of the study that will be divided into four segments for four rotations. The rotations will include: 1) corn-soybean summer crop rotation with winter fallow managed as continuous NT as typically practiced by the TN growers (control); 2) corn-soybean rotation with hairy vetch/crimson clover and cereal rye winter cover crops before corn and soybean, respectively, managed as continuous NT; 3) fiber hemp-corn continuous NT rotation with hairy vetch/crimson clover cover crop before corn (NT hemp and corn with legume cover crop); and 4) rotating NT fiber hemp-corn system with secondary tillage prior to fiber hemp planting with cover crop (NT corn, tillage hemp with legume cover crop). These four rotations will also be implemented at a smaller plot-scale trial at the TSU on-station trial farm. The TSU trial will include additional fiber hemp-corn continuous NT rotation with hairy vetch/crimson clover cover crops grown before both corn and hemp that will be terminated using a roller crimper. This treatment will include a control involving establishment of hemp and cover-crops with tillage as practiced by organic growers. This rotation will assess the fit of fiber hemp in cover crop-based continuous NT systems compared to rotational NT systems more popular in organic production. This whole system approach will provide data for GHG emissions, soil C sequestration, and overall soil health benefits on a field level basis.

Nitrogen fertility and cultivar selection in fiber hemp: A series of trials will be conducted to investigate the impact of nitrogen (N) fertilization reduction strategies (legume cover crops), cultivar selection, and N requirement for fiber hemp. To address N reduction strategies, a three-year on-station trial will be established at the UT West Tennessee AgResearch and Education Center (WTREC) in Jackson, TN. This trial will evaluate the potential of legume cover crop before fiber hemp to reduce GHG-intensive mineral N fertilizer requirements for fiber hemp production. Reduced N fertilizer input will maximize climate and other environmental (water quality) benefits of fiber hemp production as well as reduce reliance on the globally volatile fertilizer markets that have recently been subject to supply chain disruptions. Cover crop (fallow vs. hairy vetch/crimson clover legume cover) will be evaluated alongside fertilizer N rates (0, 75, 150, and 225 lbs. N/acre) at the WTREC station with fiber hemp grown continuously for three years. Cover crop will be terminated followed by soil incorporation by disk tillage to prepare soil for fiber hemp planting.

Cultivar selection and N fertilization optimization trials will also be conducted at the Highland Rim AgResearch and Education Center (HRREC) in Springfield, TN. This study will evaluate the performance of sources of genetics from various countries when grown under varying rates of N fertilizer (0, 75, 150, 225). Data from this trial will be used to establish production recommendations to be shared through the Extension land-grant mission.

Each trial will measure the emergence, growth, disease occurrence, time to flower, yield, stem diameter, hurd to bast ratio, THC compliance, GHG emissions, and net soil C change. Hemp seed will be drilled at 0.75 inch deep, at a 7.5-inch row spacing, with a seeding rate of 80 lbs/acre targeting a final population of 30-35 plants/ft^2. Hemp will be harvested at onset of reproductive growth and will be left in the field for 21 days (retting). After retting, hemp will be decorticated, and samples will be collected for visual assessments of quality. While the goal for

this trial is to quantify GHG mitigation and soil C sequestration benefits of replacing fertilizer N with legume cover crops, the data will be used in developing production recommendations and crop budgets to assist growers with fertility management decisions.

Climate smart agricultural practices that will be used in the project:

Climate smart practices that will be implemented, monitored and quantified meat the NRCS practice standards and include the following:

- (328) Conservation Crop Rotations:
  - Incorporation of industrial (fiber) hemp in traditional row crop rotations common in Tennessee that predominantly includes corn, soybeans, wheat, and cotton.
  - Smart choice of commodity crops in crop rotations that include fiber hemp as a climate smart cash crop
- (329) Residue and Tillage Management, No Till
  - On-station assessment of the impacts of combined organic no-till and conventional no-till with fiber hemp in rotation on soil health, carbon capture/sequestration and greenhouse gas emissions
- (340) Cover Crops:
  - Inclusion of cover crops between cash crops to enhance soil health, reduce weeds, soil erosion control, reduce tillage requirements, enhance carbon capture, reduce greenhouse gas emissions, and help in mitigation climate change.
- (345) Residue and Tillage Management, Reduced Till:
  - Tillage reduction for most of the same reasons listed above associated with crop rotation and cover crops
  - Minimal soil disturbance confined only above the plow zone using shallow tillage equipment such as chisel plows and disk plows rather than deep soil inversion tillage tools like moldboard plows
- (590) Nutrient Management
  - Regular soil tests to determine soil health needs
  - On-station measurements to determine and develop nutrient budgets for fiber hemp variety by nitrogen, phosphorus, and potassium (NPK) from commercial fertilizer treatments
  - On-station measurements to determine and develop nutrient budgets for NPK for fiber hemp from green manure cover crops and/or compost compared to commercial fertilizer sources

  Rates of fertilizers and placement of application will be consistent with University of Tennessee guidelines as detailed in detailed in USDA NRCS Nutrient Management Code 590.

2.B. Plan to Recruit Producers

Producer engagement will rely on outreach channels that leverage the extensive, established network of Project partners (HAT, TDA, TSU, and UT). Our messaging will be targeted to solicit farmer interest, focusing on the financial benefits of our subsidy structure as well as the educational benefits of participation, including production practices, opportunities to participate in processing, business and financial insights. Additionally, we will highlight the value of Program participation as relates to climate-smart practices. Our recruitment plan will likely touch in excess of 100 producers, eventually enrolling 10 to 40 producers in the first year. The overall Program scale targets growing 500 acres of production.

2.C. Plan to Provide Technical Assistance, Outreach, and Training

Industrial hemp has received interest from producers across the U.S. in recent years. Industrial hemp can be classified within fiber, grain, floral, or dual-purpose production categories. In the Southeastern US, the floral or cannabinoid market has left producers with limited market options, hence, exploring alternative production methods are of interest. To best serve producers, the UT and TSU systems engage stakeholders through applied research, grower meetings, field days, Extension publications, and social media. There is a longstanding relationship with clientele across Tennessee and surrounding areas and is deeply rooted in the land-grant mission. This interdisciplinary Project will generate data to be used in establishment of production recommendations for fiber hemp producers in Tennessee and the Southeastern United States. Farmers will be invited to annual TSU/UT hemp production meetings that will cover relevant topics from field preparation to planting through harvest of industrial hemp produced for fiber. Surveys will be created to understand knowledge gaps to better serve the diverse needs of the farmers involved. This information will be used to guide applied agronomic project objectives to provide data for making production decisions. Farmers will have opportunities to attend hemp specific field days that are tailored towards fiber production in Tennessee. The UT/TSU Extension Specialists will provide in-service training opportunities for Extension Agents to better prepare agents to provide guidance to farmers in their county. Information will be disseminated as Extension publications including a production guide for fiber hemp that will assist growers with decisions such as variety selection, fertility management, planting date, and harvest timing.

HAT will be implementing a technological capability to efficiently support outreach to the producer market for data collection, performance monitoring, and promotion of business and production practices, bolstering strong supplier market development.

2.D. Plan to Provide Financial and Technical Assistance for Producers to Implement CSAF Practices

Approximately 9% of the funds awarded will be spent on financial assistance to incentivize farmers to implement CSAF practices, produce hemp fiber and process it into merchantable raw materials. This will be accomplished through direct payments administered by TDA and will cover 100% of farming cost and provide an additional sum to incentive participation by targeting a return to producers paid at harvest delivery for processing. Additionally, allocations will be made to cover the cost of primary processing as both an incentive for farmer participation and as a means to empower producers to market innovations that capture value out of the supply-chain.

Although 9% of project funds will be spent on direct payments to farmers, over 50% of project funds will be utilized in providing direct technical support to farmers through testing and providing them with information on best agronomic practices for growing fiber hemp, direct market support through conducting marketing and supply chain analyses, and regular field troubleshooting visits by Project partners. (**See also Appendix I, II, and III**)

2.E. Plan to Enroll Underserved and Small Producers

The Justice40 Initiative is at the heart of our Project. Accordingly, our plan to recruit producers (2A) prioritizes partner network channels that focus on the underserved. Special efforts will be made to identify and recruit historically underrepresented producers (e.g. minority producers, women, veterans) while meeting other desired attributes of the plan such as farm size, resources, and geography. In this regard, the Program will be publicized with current trainees and graduates of the TNFA at TSU Cooperative Extension (2022) as well as the Beginning Farmer and Rancher Development projects that directly connect the Program recruiting efforts to the underserved community. The TNFA, in particular, will likely be the primary source of our producer recruitment.

Efforts will also be made to recruit farmers from the nine most economically distressed counties in Tennessee and the 30 counties at risk for becoming economically distressed. Relations with extension agents, farmers, and other local leaders as a result of other work in each of the nine counties will be used to promote the recruitment of appropriate farmers.

We anticipate greater than 60% of our producer participants will be from historically underserved groups and will receive over $500,000 in direct Project funds in financial assistance. Substantially more value will flow through our outreach plan providing technical assistance in production, business and financial practices resultant from our investigations. These efforts constitute approximately $3 million of Project funds, and will provide value to not only enrolled producers, but to the broader population of small and underserved producers not enrolled who will be empowered to further supply the developing market. We will draw from White House interim implementation guidance to Agency Heads, and further USDA-specific guidance as applicable, in determining the Justice40 status of prospective Program beneficiaries.

1. Measurement /Quantification, Monitoring, Reporting, and Verification

1.A. Approach to Greenhouse Gas Benefit Quantification

Our Measurement, Monitoring, Reporting, and Verification (MMRV) approach will involve direct monitoring by our team at the on-farm and on-station pilot experiments. We will implement intensive GHG and soil organic C (SOC) sequestration monitoring in response to fertility and rotational agronomic managements at the TSU and UT on-station trials and four on-farm locations representative of key agricultural regions in the middle and west TN.

While SOC changes slowly at yearly timescale, soil-borne GHG emissions, such as N_2O, are often highly variable in space and time at daily to sub-daily scale. Episodic peak events in response to combined management and environmental variants can contribute half of the annual emissions (Saha et al., 2017) - a critical challenge in accurately modeling such emissions leaving substantial uncertainty in model estimates of CO_2 equivalent emissions (Saha et al., 2021). While automated chamber-based measurements can provide temporally resolved data, they are expensive, which limits their ability to capture spatial variability that is often dominant in on-farm measurements. Therefore, a manual chamber-based replicated soil GHG monitoring system with a strategic event-based temporal flux monitoring plan will be deployed in collaboration between UT and TSU at the on-station and on-farm locations to account for both spatial and temporal variation in GHG emissions (Saha et al., 2017). Beside the on-station small plot-scale pilot trials, direct multi-year GHG monitoring at the farmers' fields is a unique strength of our proposal. Each of the four proposed crop rotations (see section 2.A) at the on-farm locations will be implemented in long adjacent strips to include field scale soil and micro-topography variations. In the absence of true experimental replicates, at least four to five gas chamber collars will be semi-permanently installed in each rotational strip covering sufficient field level variations. At least 30-40 GHG sampling campaigns each in Year 1 through Year 4 will be completed for both on-station and on-farm locations to establish a rich GHG dataset accounting for both spatial and temporal variability.

We will follow a coordinated GHG monitoring plan with the TSU team responsible for sampling at the middle TN sites, while the UT team will monitor west TN sites. At each sampling, the chamber collars will be covered by an opaque survey chamber (Model LI-8100A, LI-COR Biosciences, Lincoln, Nebraska, USA; headspace volume of ~4,000 cm^3) connected through tubing to portable N_2O (LI-7820SC, LI-COR Biosciences) and CH_4 and CO_2 (LI-7810, LI-COR Biosciences) analyzers placed in series for survey measurements. We will have two sets of the analyzer setup to allow independent sampling campaigns by the TSU and UT teams. The chambers will be closed for 3-5 minutes, and raw GHG concentration data will be saved on a memory card onboard the gas analyzers. SoilFluxPro (v4.0.1) software will be used to calculate

GHG fluxes. Soil moisture and temperature will be collected near each chamber location.

To monitor soil C sequestration, baseline and subsequent annual (end of growing season) deep soil cores (6.5 cm diameter × 60 cm length) will be collected using a truck-mounted hydraulic probe from six GPS-tracked random locations in each replicated on-station trial plot and rotational strip in on-farm trials. Each core will be divided into 0-5, 5-10, 10-20, 20-30, 30-40, and 40-60 cm depths. Composite soil samples from all trials will be processed by the TSU team and shipped to a commercial laboratory for analyzing total SOC and N concentrations by dry combustion method using an Elementar Vario Max CN analyzer. Bulk density at each profile depth will be determined to estimate depth-wise SOC stock. Soil C and GHG emissions will be monitored from Years 1 to 4 to establish a rich dataset that captures inter-annual variations of GHG emissions to assess uncertainty and resilience of climate mitigation potential of fiber hemp.

Net SOC change in 60 cm soil profile and cumulative N_2O and CH_4 emissions during the study duration will be multiplied by the CO_2 equivalents of respective GHGs (1, 25, and 298 for CO_2, CH_4, and N_2O, respectively for 100-year time scale). This will translate all sequestrations and/or emissions into CO_2-equivalent units (metric tons [mt] CO_2 equivalent/year/hectare) to compare the emissions from various GHGs. Mitigation potential of agronomic (i.e., tillage, fertilizer reduction) and rotational management (i.e., rotation with or without fiber hemp) will be evaluated for any reduction in CO_2 equivalent emissions. Sub-samples of soil from 0-30 cm depth (from the above deep core samples) as well as hemp tissue samples collected per year: mid-season and at harvest time will be processed by the TSU team and shipped to a commercial laboratory to test for heavy metal and other minerals to assess phytoremediation potential of hemp as a climate smart commodity.

HAT's relationship with PanXchange will be used in developing additional financial incentives for the participating producers growing fiber hemp as a climate-smart commodity. Program participants may pursue additional profits from their implementation of CSAF practices through PanXchange's Carbon program (where estimated level of CSAF-based carbon sequestration are translated into carbon credits that can be sold on a carbon exchange by participating farmers). PanXchange will provide a consulting role with respect to how farmers could ultimately benefit from hemp-based carbon credit. The resulting analysis will be included in our outreach and technical assistance activities so that the industrial hemp producers will understand the potential value of participating in carbon credit market as an additional profit center. We anticipate that one or more Program producers will fully engage with the PanXchange Carbon program thus providing information for our analysis of how carbon credits can enhance the benefits of hemp fiber production.

1.B. Monitoring of Practice Implementation

HAT will execute an outreach program to monitor practice implementation of Program producers for purposes of our fiduciary responsibility and our market analysis. PanXchange offers a robust in-person and remote monitoring program ensuring practice implementation through technical assistance for those participating farms. Program farmers will be visited at the major production practices, including seeding and harvesting. Furthermore, producers' participation in hemp-focused field days and workshops as well as engagement with the community of practice will also reinforce practice implementation.

1.C. Reporting and Tracking of Greenhouse Gas Benefits

While this is not directly part of our comprehensive producer Program, the analysis of the economics of reporting, tracking and benefit verification of GHG for production farmers is part of our pilot and consulting agreement with PanXchange. Our major focus is to quantify and track changes in field-scale CO_2 equivalent soil GHG emissions in response to fiber hemp production based on our intensively monitored on-farm and on-station pilot sites and

implementation of COMET farm model. Furthermore, a partial cradle-to-farm gate lifecycle analysis framework will be adopted by using measured and/or COMET model predicted soil emissions and emissions from farm inputs (seed, fertilizer, chemicals, farm fuel use, etc.) production by using literature data on entity-scale inventory. Detailed operational data from pilot on-farm trials will be collected to support COMET farm modeling and partial lifecycle analysis. It complements the broader market analysis and will be promoted to inform the market constituents of the value of implementing a comprehensive GHG program. While we will not directly track the supply chain GHG savings by hemp fiber use in automotive industry here, we will infer on the estimated GHG emissions associated with the existing product that will be replaced by fiber hemp.

1.D. Verification of Greenhouse Gas Benefits

Our GHG verification will rely on two components. First, in-person monitoring and sensing (PanXchange) based confirmation on climate smart practice implementation at the on-farm demonstration sites. Second, a hybrid GHG estimation approach using rigorous field measurements and COMET farm model predictions. The measurement data, although expensive, will support validating inexpensive COMET farm tool to improve the accuracy of estimates and scale-up estimation of GHG benefits.

1.E. Agreement to Participate in the Partnerships Network

The project director will participate in the USDA Partnerships for Climate-Smart Commodities Learning Network to represent the project outcomes and impact, and funds are allocated for the necessary travel. The project team will regularly collect information from the project partners tackling climate smart practice implementation, delivery of technical assistance, GHG quantification and reporting, economic feasibility analysis, and market development areas to synthesize quarterly progress reports focused on “lessons learned” and project findings. The synthesis report will be reviewed and discussed in project meetings prior to the Partnership Network meeting to prepare the project director for effective discussions highlighting the project outcomes and challenges at the Partnership Network meeting.

2. Plan to Develop and Expand Markets for Climate-Smart Commodities

The emerging industrial hemp market is extraordinary in its nascence due to its historical regulatory status. As such, it provides a singular example of a climate-smart agricultural commodity crop ripe for market development. The economic viability of every link in the supply chain from grower to end user is critical to developing a sustainable market. Understanding the risk encompassed in that question of viability is a core component to advancing private investment. Data, and analysis with producer and corporate partners at every level of the supply chain will be used to frame that risk and provide estimates of the variability of business outcomes sufficient to incentive investment. Secondarily, the promotion of the climate benefits and the various potential material applications of industrial hemp should also engage supply (farmers) and demand (manufacturers) to support market development initiatives.

Agronomic trials, monitoring, and measurements (of soil health, greenhouse gas emissions, and phytoremediation) will be used to substantiate the climate benefits and establishes tangible practices for producers to maximize those benefits. Farmers will also be provided incentives to undertake production and apply those practices such that high quality raw materials can be supplied to end market manufacturers.

An interdisciplinary business approach to market analysis and development with corporate partners will be implemented with the goal of defining the material specifications necessary to scale a market for particular product applications. This is accomplished through two Project activities.

First, in partnership with the US Hemp Authority Board, TSU will explore policy and regulatory implications with respect to defining material specifications. Specifically targeting the development of a climate-smart, socially responsible classification system and certification program for hemp fiber and pulp. The system – based loosely around the LEED building certification program -- would reward sustainability outcomes (carbon capture, water use, soil preservation) driven by better farming, manufacturing and supply chain practices. It would also factor in metrics that support racial justice, environmental justice and equality. In the scope of the USHAB program plan it will provide the necessary assessment for classification development. In the long term, this initiative would be continued, housed within the U.S. Hemp Authority. The hemp industry's self-regulating program and technical standards would be developed by a Sustainability Committee (which includes experts on agricultural sustainability and representatives of some of the nation's leading hemp consumers, such as Toyota Tsusho, Patagonia and Kontoor Brands), and then submitted for public comment from the broader industry. As such, the broader market will have a standard bearer, defining specifications and reducing constituent uncertainty.

Secondly, through HAT's promotional efforts, the raw material outputs from the basic processing of the hemp grown under the Project will be provided to interested corporate partners in the automotive, plastics, textiles, paper/pulp, and building materials industries. These raw materials will be the basis for integrated R&D efforts between our corporate partners and our project's crop processing and growing activities. For example, tracking different varieties through two processing methods, ensilage and decortication, will identify how different genetics and processing practices affect the degree to which specifications for various applications are met. This approach meets two objectives. First, identifying end applications that can be effectively supplied based on existing genetics, harvesting practices and processing technologies (defined markets). And second, identifying end use applications that can be obtained through targeted innovations supported by private investment (prospective markets).

In addition to addressing quality constraints to market development in the supply chain, we focus on price constraints to market viability. Our broader institutional market study will assess the total addressable market to quantify size and the prospective timeline to scale. Price evolution in a developing market is endogenous to virtually all variables in the supply chain and correlates most strongly with scale. Our outreach plan to all constituencies, will support our data collection through a technology platform and surveys. Our business and supply chain analysis will leverage that data to qualify assumptions and produce a dynamic (three-sheet) financial model for each element therein, specifically farmer/production and logistics/processing, that supply the end application markets. These models will be provided as a tool and Project output to support profitability and risk reduction for small and under-resourced producers. Further analysis and simulations on those models will support intelligence regarding scale, timing, and suitability for investment. These results will be promoted back to the market to support constituent expectations, grow participation and catalyze private investment.

On identifying the best candidates for current end application development, our Project plan will prepare a case study for one product application, leveraging both our market study, our field agronomic measurements and climate effects, and a literature review to promote the potential climate benefits at scale of that market's development.

These business and market efforts are headed by our HAT team in conjunction with the agricultural economics expertise of Dr. Hughes, Dr. Yu, and Mr. Crissy. We will engage a national strategic consulting firm to help us structure the scope of targeted business and market analysis, to help supervise the volunteer teams of MBA students executing those limited assignments, and to consult with us in the production of the comprehensive market report.

2.A. Partnership to Market Climate-Smart Commodity

The Project's commercial partners will lead the discovery efforts for viable end application markets utilizing Project funded raw materials for purposes of validating consensus-based standards and identifying material specifications. Furthermore, our market study and business analysis teams will work with those corporate partners to assess all aspects of the viability of those target application markets. To that end, we have existing letters of interest/support at the time of submission and are actively engaged with over a dozen other companies to explore these partnership opportunities. These include plastics/chemicals (BASF, 3M), paper/pulp (Ingram), automotive (Ford, GM, Toyota, VW), and building materials (LP). One of our core Project outcomes is expected to be clear and positive evidence of the near-term viability of an end-market application. Subsequently, that evidence will support private investment sufficient to scale the producer market. With greater scale of supply additional opportunities arise to examine the experience of efficiencies at scale relative to our prospective analysis and its impacts on price evolution such that new end application markets become feasible.

2.B. Plan to Track Climate-Smart Commodity Through Supply Chain

Our Project plan is to control the commodity from seed to harvest, with selected production partners, through direct processing involvement and ultimately to the end application market. Even prior to the evolution of large-scale supply, given the variety of raw material information that we want to track, we anticipate implementing a modern technological solution to reinforce our confidence in the value of proximity and control of information management through the supply chain. As this is a pilot, we will be identifying best practices to track the commodity and its climate beneficiary through the supply chain as it develops and report our insights as part of our market study to Program participants for implementation as the market scales and matures.

2.C. Estimated Economic Benefits to Participating Farmers

The economic benefit to participating farmers is twofold. First, increased value due to implementation of study practices that improve quantity and quality of harvest hemp. Second, higher output market prices expected from successful partnerships with manufacturers that will increase market demand via an increased variety of viable end product markets, as well as the size and scalability of end market applications.

Our pilot is focused on market development of both supply and demand to support economic benefits to participating farmers. On the supply side farmers benefit through direct payment thereby incentivizing their producer participation. Individual farmer producers will receive 100% of costs. The Project provides incentive payments approximating 40% of production budget, implying approximately 20% return to participation. This is expected to exceed a potential market return, but at no risk. Furthermore, we are providing technical assistance and best practices to increase the quality of supply and support farmer profitability. Our Program will supply processed product to our end application partners, which supports the demand side of the market development.

This Project's initiative is to drive awareness of prospective manufacturers, promote the viability of industrial hemp as a climate-smart commodity as both a substitute and complement to their existing product inputs. We will then partner with them in defining and evaluating the material specifications that inform prices. Those analyses will define expected market returns and economic benefits to producers at scale. For example, market value of bast and hurd produced will be assessed based on a series of discussions with experts across the automotive, plastics, textiles, paper/pulp, and building materials industries and through specific market studies. For example, automotive industry market uses to be analyzed and explored will include textiles, seat padding and various forms of installation materials, and bioplastics. These hemp-based products include possible replacements for urethane and other foams, fabrics, and plastic

materials and resins (Fan et al., 2011).

Our market analysis will include a case study identifying the perceived carbon market value of an end application market at scale. The cost, potential revenue, and profit structure for farms participating in the Program will be analyzed as a group. This effort will include analyzing data provided by producers with respect to fixed and variable cost as well as estimates regarding levels of hemp fiber produced under various scenarios. Profitability will be determined based on break even analysis for various prices per ton of farm produced hemp fibers (bast and hurd). Price levels will be in part determined based on analysis of demand for hemp fiber but will also be varied to account for break-even numbers. A special effort will be placed on assessing the barriers to profitability for smaller, especially minority farmers, in obtaining a profitable hemp crop. The asset base in Tennessee rural distressed counties for hemp production and processing will be assessed including implications for historically discriminated farmers. A multiplier-based assessment of the potential contribution of hemp to economic activity in Tennessee will also be conducted.

2.D. Post Project Potential in Scaling Activities

The study of the market potential for a variety of viable applications (including scale requirements for a maturing market) will be conducted in conjunction with our end application partners thereby informing a pathway for market development. Study insights promoted to state and local partners will also support industry growth.

The Project will develop a production plan for enrolled farmers that supports supplying identified markets. We will also be promoting awareness of the opportunity for non-enrolled producers to enter the market based on information gathered throughout the study.

Successful execution of the Project to viable end product markets should drive increased private investment and public actions to bolster the fledgling market. Clarity of insights into an innovative new market and evidence of first movers to effect control over the value chain effectively “jump-starts” the circular, reinforcing momentum to scale.

The USDA will obtain data and learned analysis, from which to direct and undertake public actions both through policy and regulation, such as potential insurance limits, to positively impact the national priorities of equity and the environment as a viable industrial strategy.

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Appendix I

Subawards versus Contracts:

Procurement Standards:

In regard to the HAT subaward, there are several contracts in the budget narrative that warrant further clarification. We have now adjusted the budget narrative, reflecting the classification of contracts into different categories as such.

1) Sole-Source Justification – These contracts are not subject to competition. They represent contracts with the three principals of HAT on the grant team that are meaningfully participating in the authoring of the grant proposal and performance of the grant award in various capacities, including direct grant administration, marketing, market development, logistics oversight, and partner/service management. As the separate Sole-Source Justification document notes, this is due largely to the fact that though these roles would be normally itemized in the budget as "Personnel." The Grant budget narrative guidance specifies that the "Personnel" classification is for employees of the organization. As HAT is a small volunteer organization, it does not have employees nor does it have the requisite accounting functions to support this classification. The budget narrative uses the same estimates of work effort on an hourly basis as is prescribed under the guidance for personnel. These contracts reflect budgets exclusively for labor and, in accordance with the guidance for subawards, there is no profit component to these contracts.
2) General – These are competitive contracts all to be awarded in accordance with Uniform Guidance, provision 2 CFR 200.318-327, for performance of services for the benefit of the grant objectives. All contracts are under the $250,000 threshold, and will use small purchase procedures.

Additional questions/concerns on areas that were not sufficiently addressed in the Project narrative, such as:

- *You state that "approximately 25% of the funds awarded will be spent on financial assistance to incentivize farmers to implement CSAF practices" (page 9), but the amount $444,000 does not equal 25%. Could you elaborate?*

  This error is a function of our misunderstanding the question. As you have clarified the question, the financial assistance to farmers to implement CSAF practices is $444,000, which represents 9% of the total award.

  Our proposal provides for a producer subsidy that is "risk-less." That is, it provides for enumerated costs plus and incentive payment to incentivize participation. Our calculation, providing for the 25%, reflects specifically the portion of that assistance to farmers which is explicitly "incentive," assistance in excess of enumerated costs. Producers are not subject to the market price for their harvest, the grant takes ownership of the harvest.

  We anticipate that the grant team's success in corporate partner development of viable market applications, thus demand, will eventually support additional viable market supply. However,

the timing is uncertain, and given an estimate of 300 acres currently in production in the state, even the 100 acres of subsidized production under the grant, a 1/3rd increase in supply to the market, could create price disturbances that crowd out existing producers and private at-risk investment. This is contrary to our objectives. Our plan for market development is to minimize the potential price disruption by directly identifying new corporate partners to the market that absorb the subsidized supply.

- *How many anticipated growers do you plan to be involved by year?*

  Our goal is to involve approximately 20 growers in each and every year of the grant term. We anticipate that our marketing efforts to engage the agricultural community will strengthen beyond the first year as knowledge of the program's success spreads. Accordingly, we anticipate that our participation goal in year 1 will be more challenging, especially as we further refine our plan to best identify and target involvement of small and historically underserved producers.

- *How many acres are we expecting to impact per farm or operation type? 10 farmers growing 500 ac. each year or 500 ac. total for the project?*

  Our goal is to impact up to 20 farmers growing approximately 5 acres each in every year, 100 acres/year. This represents a total of 500 acres total for the 5-year project. We anticipate that the total number of farmers that receive subsidy under the grant will exceed 20. This is based on an expectation that some producer participants will join in one year, but not necessarily participate in subsequent years. This change in producer participation could be due to their decision to opt out, or due to our decision that the farmer is not meeting project obligations under the grant. As such, discontinued participation makes room for another applicant to join the program.

- *Potential concerns exist with HAT subaward for processing and logistics. These types of activities could be scrutinized so more explanation is requested. For them to be allowed it must be necessary to complete the project objectives (2 CFR200.403a) and the amount reasonable (2 CFR 200.404).*

  HAT's role in the grant is to execute a comprehensive market development plan that focuses on cost reduction to incentivize corporate partnerships to evaluation and development initiatives exploring the viability of novel industrial hemp fiber applications in legacy markets. To achieve this goal, it is essential to incorporate processing and logistics activities as they are integral components of the overall cost to supply corporate partners with viable raw material for their R&D initiatives.

  Processing activities are crucial for optimizing the conversion of raw hemp fibers into marketable raw materials, ensuring the quality and consistency of the end product. Including these activities in the grant budget will enable us to identify and develop the most cost-effective and efficient processing methods, thus contributing to the overall risk reduction objectives. There are further advantages to scale through consolidating processing and logistics efforts as part of the grant, rather than the responsibility being pushed to individual corporate partners.

Logistics expenses are similarly vital, as they involve the transportation, storage, and distribution of raw materials and finished products. These activities play a critical role in determining the end-to-end supply chain efficiency and the overall cost of bringing industrial hemp fiber products to market. By incorporating logistics activities in the grant budget, we aim to establish a cost-effective and sustainable supply chain, making industrial hemp fiber more attractive to potential corporate partners for R&D initiatives.

The inclusion of processing and logistics in the grant budget is critical to our project's objectives. These activities are necessary to ensure the market development plan is comprehensive and effective in reducing costs and promoting corporate partnerships for the exploration of industrial hemp fiber applications.

Appendix II

Justification for Sole Source Contract Utilization for USDA Federal Grant Proposal

1. Introduction

This document serves as a justification for the use of a sole source contract in accordance with the requirements of the United States Department of Agriculture (USDA) Federal Grant Proposal Applicant: Tennessee State University (Grant 13652749) Subaward: HAT (Hemp Alliance of Tennessee). The justification provided herein is based on the unique circumstances surrounding the project, specifically: the chosen vendor is a principal investigator and part of the grant team under the HAT subaward, the reliance on that principal investigator's private resources, and the lack of subaward recipient's (HAT's) adequate accounting capabilities, and the reduced pricing structure offered by the chosen vendor.

2. Background

The project subaward requires leveraging HAT's co-Principal Investigator's private resources, primarily technology, to achieve its objectives, which include marketing, recruitment, promoting sustainable practices, participant oversight and monitoring, data collection and analysis. In order to effectively utilize these resources, a high level of expertise and experience in the specific field is required. Furthermore, the project necessitates the efficient and accurate management of financial resources to ensure compliance with the USDA's grant requirements.

3. Vendor Qualifications

a. Demonstrated expertise and experience in technological private resources, ensuring the effective application of these resources towards achieving the project's objectives.

b. Proven capacity to manage financial resources in accordance with USDA grant requirements, thereby reducing the risk of non-compliance and ensuring proper allocation of funds. Principal investigator as vendor is a CPA licensed in the state of Virginia.

c. A commitment to provide the necessary services at a significantly reduced rate of $100 per hour, as opposed to the typical market pricing of over $250 per hour. This reduced pricing structure ensures that the project remains cost-effective while maintaining the required level of quality and expertise. This rate is the same as the stated rate of personnel budgeted costs under the grant proposal.

4. No Profit and Transparent Pricing

The chosen vendor has agreed to provide their services without generating any profit, which further underscores their commitment to the project's success. Additionally, the vendor has demonstrated a transparent pricing structure that reflects their reduced hourly rate of $100, compared to the market standard of over $250 per hour. This pricing model ensures that the project remains cost-effective while still benefiting from the vendor's resources.

5. Conclusion

Based on the unique circumstances surrounding the project, the reliance on private resources, the lack of subaward recipient's adequate accounting capabilities, and the significantly reduced pricing structure offered by the chosen vendor, a sole source contract is deemed necessary and justified for the successful completion of the project in accordance with USDA federal grant requirements. This approach ensures that the project benefits from the expertise and experience of the chosen vendor while maintaining cost-effectiveness and compliance with USDA grant guidelines.

Appendix III

Preliminary Marketing Plan to Farmers/Producers for Climate-Smart Industrial Hemp Fiber Project

Mission:

Our mission is to support the project's objectives by identifying small and traditionally underserved farmer producers in Tennessee to participate in the grant project and adopt sustainable agricultural practices in industrial hemp fiber cultivation, by providing them with financial incentives, technical guidance and assistance, and business analysis support.

Market Objectives:

Who: Small and traditionally underserved farmer producers in Tennessee interested in industrial hemp.

What: Solicit for grant participation and encourage adoption of sustainable agricultural practices in industrial hemp fiber cultivation, by providing financial incentives, technical guidance and assistance.

When: Over a term of up to 5 years starting in 2024.

Where: Tennessee, specifically in distressed areas as identified here (https://www.tn.gov/transparenttn/state-financial-overview/open-ecd/openecd/tnecd-performance-metrics/openecd-long-term-objectives-quick-stats/distressed-counties.html)

Why: Primary: To support novel market development of industrial hemp as a climate smart commodity.

Secondary (Farmer/Producer/Supply Specific): To support the investigation, education, and dissemination of best practices in the adoption of climate smart industrial hemp agriculture in the state. To support the investigation and analysis of industrial hemp as a viable agriculture market.

How: By identifying and supporting 20 farmers who will each grow a plot of approximately 5 acres of industrial hemp, implementing climate-smart agricultural practices.

SWOT Analysis:

Strengths:

- The project covers all direct enumerated costs, making participation riskless.
- The project provides financial incentives, technical guidance and assistance, and research and analysis support.
- The project supports sustainable agricultural practices, specifically industrial hemp fiber cultivation.
- The project aims to educate and support small and traditionally underserved farmer producers.

Weaknesses:

- Industrial hemp fiber cultivation is still a relatively new industry in Tennessee.

- There may be some resistance to adopting sustainable agricultural practices among potential participants.
- The project may be limited to only 20 farmers in the initial phase. The conscientious undertaking of producer enrollment also limits the potential adverse impacts to existing private producers should excess supply be sold into market lacking sufficient demand.

Opportunities:

- There is a growing demand for sustainable and eco-friendly products, including industrial hemp fiber.
- Tennessee has a favorable climate for industrial hemp cultivation.
- The project may serve as a model for broader adoption sustainable agricultural practices.
- The project may serve as a model for continued private production of industrial hemp.

Threats:

- Competing crops or agricultural opportunities may gain popularity or become more profitable, limiting the number of willing participants.
- Grant participation could become overly burdensome and discourage continued participation.

Market Environment:

There is a growing demand for sustainable and eco-friendly products, including industrial hemp fiber, which has a wide range of applications, including textiles, building materials, and paper products. However, there is still a lack of knowledge and awareness among small and traditionally underserved farmer producers about the benefits of industrial hemp agriculture and sustainable agricultural practices in general.

Market Strategy:

To reach the target audience of small and traditionally underserved farmer producers, we will use a combination of technological and traditional marketing channels, as outlined below:

- Website: We will create a website to serve as the primary source of information for potential participants. The website will provide detailed information about the project, including eligibility criteria, benefits, and the application process. The website will also feature success stories from participants and a FAQ section to address any questions that potential participants may have.
- Email Direct Marketing: We will use targeted email marketing to reach potential participants directly. We will obtain email lists of small and traditionally underserved farmer producers in Tennessee and send them information about the project, including eligibility criteria, benefits, and the application process.
- Social Media: We will use social media platforms such as Facebook, Twitter, and Instagram to reach a wider audience. We will post regular updates about the project and share success stories from participants.
- New Farmer Academy and Beginning Farmer and Rancher Development Program (BFRDP) at TSU: We will partner with the New Farmer Academy and the USDA funded BFRDP project at

Tennessee State University (TSU) to provide information about the project to potential participants who are interested in learning about sustainable agriculture practices.

- Agricultural Extension: We will partner with the Agricultural Extension in Tennessee to provide information about the project to potential participants who are interested in learning about industrial hemp agriculture.
- TDA: We will partner with the Tennessee Department of Agriculture (TDA) to provide information about the project to potential participants who are interested in sustainable agriculture practices.
- Local Media/PR: We will reach out to local media outlets, such as newspapers and radio stations, to promote the project and share success stories from participants. This will help raise awareness about the benefits of industrial hemp agriculture and encourage potential participants to apply.
- HAT Events: We will participate in events related to sustainable agriculture and industrial hemp fiber cultivation to promote the project and educate potential participants. This will include attending agricultural fairs, conferences, and other related events.

Appendix IV

Preliminary Marketing Plan (Demand-Side Market Development) for Industrial Hemp Project

Mission:

The grant team is committed to pioneering the future of sustainable and climate-smart industrial hemp by forging strategic partnerships with leading corporations in mature market verticals. Our mission is to create a collaborative ecosystem that fosters innovation, reduces risks, and promotes a circular economy by integrating environmentally responsible hemp-based alternatives into established industries.

We recognize that the path to sustainable market demand growth relies on minimizing the direct costs and uncertainties associated with research and development. Our comprehensive market development plan aims to empower our corporate partners through:

- Zero-Cost Raw Material Access: We provide our partners with cost-free industrial hemp, alleviating the financial burden of raw material procurement, primary processing, and logistics, thus enabling them to focus on market analysis and development with minimal financial constraints.
- Subsidized Processing analysis: By connecting our partners with an established network of scientists, institutions, and experts in industrial hemp applications, we help streamline the R&D process and reduce primary processing research expenses. Our partnerships will foster innovation tailored to the specific needs and verticals of our corporate partners.
- Informed Decision-Making: To ensure executive teams are equipped with accurate and relevant information for strategic decisions, we deliver comprehensive business, market, and supply-chain analysis. This robust data support system bridges the gap between product line R&D professionals and executive decision-makers, resulting in more informed and lower-risk business decision to advance initiatives into production that support long term sustainable demand.

Through these initiatives, we aim to lead the market development for industrial hemp, creating a greener and more sustainable world by transforming established industries with environmentally conscious alternatives. Together, we will build a brighter and more sustainable future for generations to come.

Market Objective:

The grant team is dedicated to accelerating the integration of industrial hemp into established industries through strategic collaborations with leading corporations as means to market development. Our primary market objective is to secure partnerships with 4-8 corporate partners within the grant's 5-year duration, representing diverse industry verticals where industrial hemp presents viable and significant opportunities for application development.

To achieve this objective, we have outlined the following strategies:

- Target Identification: Conduct extensive market analysis to identify key industry verticals with the highest potential for industrial hemp application and integration. This analysis will encompass industries such as textiles, construction materials, automotive, plastics, and packaging.

- Partner Selection: Within the identified industries, we will analyze the market landscape and select potential partners based on their industry presence, commitment to sustainability, and receptiveness to innovative research and development initiatives. Our goal is to engage with partners who share our vision for a more sustainable future.
- Customized Approach: Develop tailored proposals for each potential partner, highlighting the benefits of collaboration and how industrial hemp can positively impact their specific market vertical. We will emphasize the advantages of our project, such as zero-cost raw material access, subsidized processing research, and informed decision-making support.
- Partnership Development: Engage in ongoing dialogues with potential partners to establish trust, foster mutual understanding, and develop long-term collaborations. This will involve identifying each partner's unique needs and challenges and offering bespoke solutions to facilitate the successful integration of industrial hemp into their operations.
- Implementation and Support: Upon securing each partnership, we will work closely with our partners to implement the industrial hemp market analysis and development initiatives, providing them with the necessary resources, support, and expert guidance. Our involvement will extend from the initial evaluation and analysis stage to the prospective commercialization of hemp-based applications.
- Monitoring and Evaluation: Continuously monitor and assess the progress of each partnership to ensure alignment with our market objectives, identify potential areas for improvement, and celebrate shared successes. This will allow us to maintain strong relationships with our partners, as well as adapt our strategies and approach as needed.

Through the successful execution of these strategies, the grant team will develop and promote sustainable, climate-smart industrial hemp. Our collaborative efforts with industry-leading partners will drive the transformation of established industries, ultimately contributing to a more sustainable global economy.

SWOT Analysis:

Strengths:

- Favorable Environment: The growing global focus on environmental sustainability and climate resilience creates a conducive environment for promoting the use of industrial hemp as a viable and eco-friendly alternative to traditional raw materials.
- Incentivized Partnerships: Our unique approach to incentivizing corporate partnerships, which includes reducing direct costs, subsidizing research, sharing resources, and improving information for decision-making, helps attract established industry players to collaborate with us and explore the potential of industrial hemp.

Weaknesses:

- Limited Current Market: With only around 300 acres of industrial hemp in production, any successful market application emerging from our project may outpace the agricultural sector's ability to supply the necessary raw materials. This potential imbalance could result in market volatility and pricing anomalies during the adjustment period.
- Lack of Credible Participants: The absence of established, reputable market players and extensive research in the industrial hemp sector may make it difficult for our team to persuade

risk-averse legacy industries to invest in hemp-based market analysis and development initiatives.

- Interdependent Supply Chain: For long-term viability and sustainability, multiple stakeholders within the supply chain need to collaborate and evolve in a timely manner. Ensuring this synchronization could be challenging.

Opportunities:

- Large Potential Market: Any disruptive industrial hemp application could tap into the vast market size of existing verticals, presenting immense growth opportunities for the project and its partners.
- Early Mover Advantage: By being one of the first to explore and develop industrial hemp applications in various market verticals, corporate partners can capitalize on early mover advantages, including brand recognition as environmentally conscious and innovative.
- Attractive Equity Market Multiples: Corporations that identify and successfully implement viable industrial hemp applications may benefit from favorable equity market multiples, reflecting their commitment to sustainability and innovation.

Threats:

- Lax Environmental Regulations: A lack of stringent environmental regulations or weak enforcement could allow legacy products to maintain a competitive cost advantage in the market, impeding the adoption of industrial hemp alternatives.
- Development Partner Scarcity: Our project's success relies on identifying and securing partnerships with material science processing experts to support corporate market analysis and development initiatives. Failure to forge these relationships could hinder the progress and success of our project.

Market Environment:

Industrial hemp has a wide range of potential applications across various industries, including textiles, construction materials, automotive, plastics, and packaging. None of these are fully developed. With growing environmental concerns and a global push towards sustainable and eco-friendly solutions, the market for industrial hemp is expected to experience significant growth in the coming years.

Market Segmentation:

The industrial hemp market can be segmented based on its application, industry vertical, and geography. Major industry verticals that are potential targets for industrial hemp integration include:

a. Textiles

b. Construction materials

c. Automotive

d. Plastics and composites

e. Packaging

Geographically, the market can be segmented into large continental factions, with Europe leading the way in application development. Within the US, development interest has been primarily supply driven and has advanced in the west. The southeast is less developed. Demand is not as geographically focused in early stages of application development, but becomes more relevant at scale given interest in proximity to production and processing due to the cost of logistics.

Market Size and Growth:

Prospective growth primarily reflects the increasing demand for environmentally sustainable alternatives across various industries. However, market growth may be influenced positively by factors such as technological advancements, and successful market analysis and development initiatives.

Market Drivers:

- Growing environmental consciousness: The shift towards environmentally sustainable and eco-friendly solutions is a key driver of demand for industrial hemp applications.
- Regulatory support: Governments worldwide are increasingly promoting the cultivation and use of industrial hemp due to its potential to reduce carbon emissions and promote a circular economy.
- Technological advancements: As research and development in the field of industrial hemp continues, new and innovative applications will drive market growth.

Competitive Landscape:

The industrial hemp market is currently characterized by a mix of small and medium-sized enterprises. The competitive landscape may evolve as more established players enter the market, attracted by the potential for sustainable growth and lucrative opportunities. Early movers in the space will need to maintain a strong value proposition and a commitment to innovation.

Market Opportunities:

Successful partnerships with leading corporations in targeted industry verticals will define the grant's success in meeting its goals to capitalize on the market's growth potential. These partnerships will not only drive innovation in industrial hemp applications but also reinforce the credibility of the market, attracting further investments and fostering a sustainable industrial hemp ecosystem.

Market Strategy:

Our market strategy revolves around leveraging unique incentives and relationship-building with potential corporate partners. By focusing on lower costs and high-quality business analysis our strategy supports an initiative's reduced risk profile and improved prospective ROI. Our market strategy accelerates informed decision-making to create a compelling value proposition for our partners.

Relationship Building and Outreach:

Given the long sales cycle for corporate partnerships, we will prioritize high-level relationship building with a limited number of prospective partners. Our approach will involve the following steps:

- Identify key decision-makers within target organizations, including C-level executives and other influential stakeholders.

- Establish initial contact through networking events, industry conferences, and targeted outreach.
- Engage in ongoing dialogues to understand each potential partner's unique needs, challenges, and strategic goals.
- Provide regular updates and insights on the industrial hemp market, market analysis, and success stories from the industry to maintain top-of-mind awareness.

Customized Partnership Proposals:

Based on the insights gained through relationship building, we will develop tailored partnership proposals that emphasize the unique incentives of collaborating with our project, including:

- Lower costs: Highlight our zero-cost raw material access and subsidized processing analysis initiatives, positioning our partnership as a cost-effective solution for industrial hemp market analysis and development.
- Institutional-quality business analysis: Showcase our expertise in providing comprehensive market, supply chain, and risk analysis to support informed decision-making at the executive level.
- Reduced risk profile: Demonstrate how our support mitigates the risks associated with market analysis and development initiatives, thus increasing the overall attractiveness of investing in industrial hemp exploration.
- Improved prospective ROI: Emphasize the potential for higher returns on investment through early mover advantage, access to growing markets, and innovative applications of industrial hemp.

Supporting Proprietary Analysis:

Another goal is to provide potential partners with independent and credible information that allows them to launch their proprietary analysis of the industrial hemp opportunity. We will achieve this by:

- Sharing relevant market analysis, case studies, and industry reports to build a strong foundation for their internal evaluation.
- Connecting partners with subject matter experts, researchers, and other stakeholders to facilitate knowledge sharing and collaboration.
- Offering ongoing consultation and support to address any concerns or challenges that may arise during their internal evaluation process.

Partnership Milestones:

We will set realistic milestones for securing partnerships, in line with our long-term goal of having 4-8 corporate partners in 5 years:

- Year 1 (2024): Identify and secure the first corporate partner for the upcoming harvest season in fall 2024.
- Years 2-5 (2025-2028): Leverage the success of our first partnership to attract and secure additional partners, ultimately achieving a diverse portfolio of 4-8 corporate partners in various industry verticals. We believe that by identifying sufficient numbers of corporate partners we will successfully find a placement for the approximately 2,000 tons (4 tons/acre x 100 acres x 5

years) of industrial hemp supply subsidized under the grant. Successfully identifying that demand will likely encourage the private market supply to expand, continuing the positive impact of the grant into the future beyond the grant term.

By focusing on relationship building, offering unique incentives, and supporting our partners' proprietary exploration, our market strategy aims to attract and retain a strong network of corporate partners. In doing so, the grant can drive the adoption and integration of industrial hemp across various industries, creating a more sustainable and environmentally conscious future.

Appendix V: Milestones and Benchmarks

Table 1: Quantitative benchmarks for the climate-smart fiber-hemp commodity project

Project Quantitative Benchmarks	Unit/Yearly	Total
Number of producers involved	20 or more/year - recurring	>20
Number of underserved producers involved	>75% of total	>15
Number of acres involved	100/year	500
Number of head involved (if applicable)	N/A	
Dollars provided to producers	Table 2	
GHG Benefits (Metric Tons of CO2e Reduced or Sequestered)	(Other project benchmarks)	
Number of new marketing channels* established	See Table 2	
Number of marketing channels* expanded	See Table 2	
Number of measurement tools utilized	Various greenhouse gas and soil health, and crop measurement tools available in UT and TSU repository including statistical tools, predictive tools such as COMET for CO_2 equivalent estimates, data management tools (soil, plant, and GHG), data imagery tools	

Table 2: Quantitative financial and marketing benchmarks

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1 Dollars provided to producers	$ 82,000	$ 85,313	$ 88,761	$ 92,347	$ 96,079	$ 444,500
2 Number of New Marketing Channels*	1	2	2	1	0	6
3 Number of Expanded Channels**	1	3	5	6	6	NA

* Our Market Development Exercises are based on Corporate Partnerships, each representing the establishment of a marketing channel. Partnerships are expected to last for the duration of the grant once established, but if they should end, they would be replaced.

** We expect that all corporate partnerships will expand their use of the harvested hemp available from the grant over the term of their participation both in terms of application saturation and identification of other diverse application opportunities as intelligence grows.

Other Project Benchmarks (Quantitative or Qualitative)

- Outreach, training, and other technical assistance:
    a. One producer meeting with project personnel every quarter
        - Meeting will involve training, workshop, troubleshooting, or consultation
            - Four meetings per year (two in the first year) for a total of 18 meetings)
- Other MMRV and supply chain traceability attributes
    a. GHG Benefits involved with the project (Metric Tons of CO2e reduced or sequestered)
        - Year 1: Procurement of GHG measurement equipment, field setup, and initiation of flux measurements in coordination with UTK and TSU at the producers' fields and experimental stations at the middle and west TN locations. Deep core soil sampling for baseline soil C measurements.
        - Year 2: GHG measurements from the specified treatments continue (~30-40 gas sampling events/year) at the above locations and gas flux database management framework developed. Year 2 deep soil core sampling for determining profile change in soil C.
        - Year 3: GHG measurements continue, Year 3 deep core sampling for soil C, leveraging our partnership with PanXchange to provide soil C and GHG data for verification, and developing COMET modeling framework and protocol.
        - Year 4: Completion of Year 4 GHG measurements, final deep core soil sampling to determine net change in profile soil C stock.
        - Year 5: Compilation of 4-year soil C and GHG database, estimation of CO_2-equivanent emissions in response to fiber hemp, completion of data analysis and modeling, and manuscript writing.

- Other measurements of work related to marketing of commodities (Appendix VI)

- Demonstrated engagement of major partners (Appendix VI)

- Climate smart technologies employed (if applicable)
    a. Greenhouse gas sampling:
        - Automated greenhouse gas sampling
    b. Carbon storage and sequestration:
        - Estimation of carbon storage and carbon sequestration through annual deep-core soil sampling
    c. Crop rotation, cover cropping and reduced tillage:
        - Determination and quantification of impacts of reduced tillage practices in tradition crop rotation or modified traditional crop rotation that includes fiber hemp as climate smart commodity
        - Quantification of impact of climate smart commodity in traditional crop rotation

Appendix VI: Other Required Benchmarks

Other measurements of work related to marketing of commodities:

We will engage in direct relationship marketing with over 100 potential corporate partners throughout the grant. This process will be managed in a CRM to track activities throughout the duration of the grant. We anticipate a broad and diverse effort in the first 3 years while trying to identify and establish potential market channels. The marketing efforts will be more targeted in the later 2 years as we continue to serve the established corporate partners and focus on areas of development that have been proven most receptive and productive.

Each of our corporate partnerships will have the chance to engage with the business development team to complete studies on the viability of their market application. We anticipate driving this work in each major industry vertical for fiber hemp (4). The benchmark for this effort is tied to the engagement of a student MBA team through HAT and as advised by the contracted strategic consultancy on the study's scope and objectives. We would anticipate timing of these to be one per year starting in year two with a cumulative summary report in the 5th and final year of the grant's duration.

Demonstrated engagement of major market development partners:

The active engagement of our corporate partners will be gauged by their participation in our market development studies, the amount of harvest demanded/consumed, and the reciprocal participation in our processing studies. All corporate partners are expected to participate in all activities throughout the grant term. We will vet all corporate partners on their expectation to meet this standard and lack of involvement may result in being removed from the partnership program.

Demonstrated engagement of producer partners:

The active engagement of our producer partners will be gauged by their participation in our surveys, the amount of harvest produced, and the practices implemented. All producer partners are expected to participate in all activities throughout the grant term. We will vet all producer partners as part of our application process on their willingness to meet this standard and lack of involvement may result in being removed from the partnership program.

Practices to Prevent Misappropriation of Funds/Double Payments:

We understand the concern raised by the USDA regarding the potential for misappropriation of funds in the grant, in particular, the potential for double payments to farmer participants. We hold the highest expectations of our team to provide financial administration and oversight of our partners as a custodian of federal funds. To address this concern, we have outlined the following best practices, methods, and procedures to effectively administer the grant and prevent double payments or misappropriation of funds:

1. Rigorous Participant Vetting: We will establish a thorough screening process for selecting participants. This could include background checks, review of existing contracts or agreements, and assessment of previous funding received from other sources to ensure that they have not received payments for the same land under other programs.

2. Clear Agreements and Contracts: We will draft clear and detailed agreements with grant participants, corporate partners and producers. Farmer participants will have clauses that explicitly prohibit the receipt of duplicate payments for the same land from other sources. These agreements will outline the terms and conditions of the grant, reporting requirements, and penalties for non-compliance. They may include non-competes and conflict of interest disclosure and agreement among others where appropriate.
3. Regular Monitoring and Reporting: We will require farmer participants to submit periodic progress reports, including updates on their financial status, other funding sources, and compliance with the grant terms. These reports will be reviewed by our grant administration team to ensure that farmers are not receiving double payments.
4. On-Site Inspections: Our team will conduct periodic on-site inspections to verify compliance with the grant terms and ensure that funds are being used for the intended purpose. This will provide an additional layer of oversight to prevent double payments and misappropriation of funds.
5. Collaboration with Other Agencies: Where and when deemed necessary we will actively collaborate with other federal and state agencies involved in agricultural funding to share information about farmer participants and funding sources. This will allow us to cross-check payment records and avoid potential overlaps.
6. Training and Education: We will provide training and educational resources to farmer participants about the importance of avoiding double payments and the consequences of non-compliance. This will ensure that they are fully informed and understand their responsibilities under the grant.

By implementing these best practices, methods, and procedures, we are confident that we can effectively administer the Climate-Smart Commodities grant and eliminate the risk of double payments or misappropriation of funds.

Benchmarks/Milestones		Year 1 Period #1 2023 Q3 9/30/2023 Prep	Year 1 Period #2 2023 Q4 12/31/2023 Season #1
Number of Producers Involved	*Per Period*		16
Number of Underserved Producers (~75%)	*Per Period*		12
Number of Acres Involved	*Per Period*		80
	Cummulative		
Dollars Provided to Producers	*Per Period*		$ 15,937
	Cummulative		$ 15,937
Field GHG emission monitoring intensity (number of measurements)	*Per Period*	0	1472
	Cummulative	0	1472
Potential estimation on ton CO2-equivalent sequestration in soils	*Per Period*		
	Cummulative	0	0
Number of New Marketing Channels (greater than)	*Per Period*		
	Cummulative		0
Number of Expanded Channels (greater than)	*Per Period*		0
Measurement tools utilized	*Per Period*	0	2
	Cummulative	0	2
Extension In-Service Trainings for Agents who serve producers.	*Per Period*	0	1
	Cummulative	0	1
Field Days and County Production Meetings	*Per Period*	0	0
	Cummulative	0	0
Extension bulletins and publications released	*Per Period*	0	0
	Cummulative	0	0
Corporate Partner Contacts (greater than)	*Per Period*		15
	Cummulative		15
Percent of fields visited to verify practice compliance	*Per Period*	0	0
	Cummulative		0
Climate Smart Technologies employed	*Per Period*		0
	Cummulative		

	Other Required Benchmarks	Year 1 2023 Q3	Year 1 2023 Q4
Outreach, Training and other Technical Assistance			
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X	
2	Fiber hemp management practices training developed	X	X
3	Grower recruitment		X
4	Develop project website as resource for growers, partners and project team	X	X
5	Baseline farm operation data collected on enrolled farms via survey		X
6	Create producer advisory group with representatives from all regions		
7	Reflection training, trouble shooting, and other advisory meetings with growers		
8	Update project website with information from previous years		
9	Producer advisory group meeting		
10	Develop and deliver training material based on farmer survey, other material		

	Benchmarks/Milestones	Year 1 Period #1 2023 Q3 9/30/2023 Prep	Year 1 Period #2 2023 Q4 12/31/2023 Season #1
	Other MMRV and Supply Chain Traceability Attributes		
1	Develop survey of participating farmers for crop budgets		
2	Test sruvey instrument with participating farmers for crop budgets		
3	Administer/collect data from participating farmers for crop budgets		
4	Report preliminary analysis of collected data		
5	Develop and deliver training material based on farmer survey, other material		
6	Publish crop budget(s) with number warranted by conditions (rotational differences etc.)		
7	Completion of data analysis and modeling, and dissemination through reporting and publishing.		
	Other Measurements of Work Related to Marketing of Commodities		
1	Development/Review of Marketing Plan	X	
2	Corporate Partner Consulting Engagement Scope Development	X	X
3	Corporate Partner Consulting Engagement Plan Execution		
4	Conduct Business/Economic Surveys of Corporate constituencies		
5	Marketing Infrastructure Development		X
6	Business and Economic Analysis Reporting		
	Demonstrated Engagegment of Major Partners		
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X	
2	Development of workplans (TSU, HAT, UT, and TDA)	X	
3	Review of workplans and strategies (TSU, HAT, UT, and TDA)		X
4	Develop recruiting information for fiber hemp producers (TSU, HAT,UT, TDA)	X	
5	Grower recruitment (TSU, HAT, TDA)		X
6	Review of grower recruitment efforts (TSU, HAT, TDA)		
7	Review of on-farm and on-station soil and GHG sample collection (TSU, UT)		
8	Review of environmental impact analysis plans and reports (TSU, UT)	X	
9	Review of grower payments, impacts, challenges, and opportunities (TDA)	X	
10	Identification of on-station and on-farm GHG and soil C measurement and monitoring field sites (TSU, UT)	X	X
11	Procurement and installation of GHG equipment on selected project sites	X	
12	Deep core soil sampling (TSU, UT)		X
13	Nutrient management and fertlity protocols decelopment (UT)	X	X
14	Climate smart technology development and monitoring on-station and on-farm (TSU, UT)		X
15	Market identification, development, and expansion (HAT, UT, TDA)	X	X
16	GHG monitoring and assessment (TSU, UT)		
17	Compilation of 4-year soil C and GHG database (TSU, UT)		
18	Estimation of CO2-equivalent emissions in response to fiber hemp (TSU, UT)		

Benchmarks/Milestones		Year 2 Period #3 2024 Q1 3/31/2024 Season #1	Period #4 2024 Q2 6/30/2024 Season #1	Period #5 2024 Q3 9/30/2024 Season #1	Period #6 2024 Q4 12/31/2024 Season #1 Season #2
Number of Producers Involved	*Per Period*	19	22	22	22
Number of Underserved Producers (~75%)	*Per Period*	14	16	16	16
Number of Acres Involved	*Per Period*	95	110	110	110
	Cummulative			110	
Dollars Provided to Producers	*Per Period*	$ 19,115	$ 22,354	$ 22,578	$ 22,803
	Cummulative	$ 35,052	$ 57,406	$ 79,984	$ 102,787
Field GHG emission monitoring intensity (number of measurements)	*Per Period*	1472	1472	1472	1472
	Cummulative	2944	4416	5888	7360
Potential estimation on ton CO2-equivalent sequestration in soils	*Per Period*			807.4	
	Cummulative	0	0	807.4	807.4
Number of New Marketing Channels (greater than)	*Per Period*			1	
	Cummulative	0	0	1	1
Number of Expanded Channels (greater than)	*Per Period*	0	0	1	0
Measurement tools utilized	*Per Period*	2	3	2	2
	Cummulative	4	7	9	11
Extension In-Service Trainings for Agents who serve producers.	*Per Period*	0	0	0	1
	Cummulative	1	1	1	2
Field Days and County Production Meetings	*Per Period*	1	1	0	0
	Cummulative	1	2	2	2
Extension bulletins and publications released	*Per Period*	0	0	0	1
	Cummulative	0	0	0	1
Corporate Partner Contacts (greater than)	*Per Period*	20	20	10	10
	Cummulative	35	55	65	75
Percent of fields visited to verify practice compliance	*Per Period*	0.25	0.5	0.75	1
	Cummulative	0.25	0.75	1.5	2.5
Climate Smart Technologies employed	*Per Period*	5	5	5	5
	Cummulative				

	Other Required Benchmarks	Year 2 2024 Q1	2024 Q2	2024 Q3	2024 Q4
Outreach, Training and other Technical Assistance					
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X		X	
2	Fiber hemp management practices training developed				
3	Grower recruitment	X			X
4	Develop project website as resource for growers, partners and project team				
5	Baseline farm operation data collected on enrolled farms via survey	X			
6	Create producer advisory group with representatives from all regions	X	X	X	
7	Reflection training, trouble shooting, and other advisory meetings with growers	X	X		X
8	Update project website with information from previous years			X	
9	Producer advisory group meeting	X			X
10	Develop and deliver training material based on farmer survey, other material	X			

	Benchmarks/Milestones	Year 2 Period #3 2024 Q1 3/31/2024 Season #1	Period #4 2024 Q2 6/30/2024 Season #1	Period #5 2024 Q3 9/30/2024 Season #1	Period #6 2024 Q4 12/31/2024 Season #1 Season #2
Other MMRV and Supply Chain Traceability Attributes					
1	Develop survey of participating farmers for crop budgets	X			
2	Test sruvey instrument with participating farmers for crop budgets			X	
3	Administer/collect data from participating farmers for crop budgets			X	
4	Report preliminary analysis of collected data			X	
5	Develop and deliver training material based on farmer survey, other material				
6	Publish crop budget(s) with number warranted by conditions (rotational differences etc.)				
7	Completion of data analysis and modeling, and dissemination through reporting and publishing.				
Other Measurements of Work Related to Marketing of Commodities					
1	Development/Review of Marketing Plan	X			
2	Corporate Partner Consulting Engagement Scope Development				X
3	Corporate Partner Consulting Engagement Plan Execution	X			
4	Conduct Business/Economic Surveys of Corporate constituencies		X		
5	Marketing Infrastructure Development	X			
6	Business and Economic Analysis Reporting		X		
Demonstrated Engagegment of Major Partners					
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X		X	
2	Development of workplans (TSU, HAT, UT, and TDA)		X		
3	Review of workplans and strategies (TSU, HAT, UT, and TDA)			X	
4	Develop recruiting information for fiber hemp producers (TSU, HAT,UT, TDA)			X	
5	Grower recruitment (TSU, HAT, TDA)	X			X
6	Review of grower recruitment efforts (TSU, HAT, TDA)			X	
7	Review of on-farm and on-station soil and GHG sample collection (TSU, UT)	X			
8	Review of environmental impact analysis plans and reports (TSU, UT)	X			
9	Review of grower payments, impacts, challenges, and opportunities (TDA)	X		X	
10	Identification of on-station and on-farm GHG and soil C measurement and monitoring field sites (TSU, UT)	X	X		
11	Procurement and installation of GHG equipment on selected project sites		X		
12	Deep core soil sampling (TSU, UT)	X			
13	Nutrient management and fertlity protocols decelopment (UT)				
14	Climate smart technology development and monitoring on-station and on-farm (TSU, UT)		X	X	X
15	Market identification, development, and expansion (HAT, UT, TDA)	X	X	X	X
16	GHG monitoring and assessment (TSU, UT)		X	X	X
17	Compilation of 4-year soil C and GHG database (TSU, UT)				
18	Estimation of CO2-equivalent emissions in response to fiber hemp (TSU, UT)				

Benchmarks/Milestones		Year 3			
		Period #7 2025 Q1 *3/31/2025*	Period #8 2025 Q2 *6/30/2025*	Period #9 2025 Q3 *9/30/2025*	Period #10 2025 Q4 *12/31/2025*
		Season #1 Season #2	Season #2	Season #2	Season #2 Season #3
Number of Producers Involved	*Per Period*	24	27	27	27
Number of Underserved Producers (~75%)	*Per Period*	18	20	20	20
Number of Acres Involved	*Per Period*	120	135	135	135
	Cummulative			245	
Dollars Provided to Producers	*Per Period*	$ 25,125	$ 28,549	$ 28,834	$ 29,122
	Cummulative	$ 127,913	$ 156,461	$ 185,295	$ 214,418
Field GHG emission monitoring intensity (number of measurements)	*Per Period*	1472	1472	1472	1472
	Cummulative	8832	10304	11776	13248
Potential estimation on ton CO2-equivalent sequestration in soils	*Per Period*			1798.3	
	Cummulative	807.4	807.4	2605.7	2605.7
Number of New Marketing Channels (greater than)	*Per Period*		1	1	
	Cummulative	1	2	3	3
Number of Expanded Channels (greater than)	*Per Period*	0	2	3	0
Measurement tools utilized	*Per Period*	3	2	2	3
	Cummulative	14	16	18	21
Extension In-Service Trainings for Agents who serve producers.	*Per Period*	0	0	0	1
	Cummulative	2	2	2	3
Field Days and County Production Meetings	*Per Period*	1	1	0	0
	Cummulative	3	4	4	4
Extension bulletins and publications released	*Per Period*	1	0	0	1
	Cummulative	2	2	2	3
Corporate Partner Contacts (greater than)	*Per Period*	15	10		
	Cummulative	90	100	100	100
Percent of fields visited to verify practice compliance	*Per Period*	0.25	0.5	0.75	1
	Cummulative	2.75	3.25	4	5
Climate Smart Technologies employed	*Per Period*	5	5	5	5
	Cummulative				

	Other Required Benchmarks	Year 3			
		2025 Q1	2025 Q2	2025 Q3	2025 Q4
Outreach, Training and other Technical Assistance					
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X		X	
2	Fiber hemp management practices training developed				
3	Grower recruitment	X			X
4	Develop project website as resource for growers, partners and project team				
5	Baseline farm operation data collected on enrolled farms via survey				
6	Create producer advisory group with representatives from all regions				
7	Reflection training, trouble shooting, and other advisory meetings with growers	X		X	
8	Update project website with information from previous years			X	
9	Producer advisory group meeting		X		
10	Develop and deliver training material based on farmer survey, other material	X			

	Benchmarks/Milestones	Year 3 Period #7 2025 Q1 3/31/2025	Period #8 2025 Q2 6/30/2025	Period #9 2025 Q3 9/30/2025	Period #10 2025 Q4 12/31/2025
		Season #1			
		Season #2	Season #2	Season #2	Season #2
					Season #3
	Other MMRV and Supply Chain Traceability Attributes				
1	Develop survey of participating farmers for crop budgets				
2	Test sruvey instrument with participating farmers for crop budgets				
3	Administer/collect data from participating farmers for crop budgets			X	
4	Report preliminary analysis of collected data				
5	Develop and deliver training material based on farmer survey, other material		X		X
6	Publish crop budget(s) with number warranted by conditions (rotational differences etc.)				
7	Completion of data analysis and modeling, and dissemination through reporting and publishing.				
	Other Measurements of Work Related to Marketing of Commodities				
1	Development/Review of Marketing Plan	X			
2	Corporate Partner Consulting Engagement Scope Development				X
3	Corporate Partner Consulting Engagement Plan Execution	X			
4	Conduct Business/Economic Surveys of Corporate constituencies		X		
5	Marketing Infrastructure Development				
6	Business and Economic Analysis Reporting		X		
	Demonstrated Engagegment of Major Partners				
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X		X	
2	Development of workplans (TSU, HAT, UT, and TDA)		X		
3	Review of workplans and strategies (TSU, HAT, UT, and TDA)			X	
4	Develop recruiting information for fiber hemp producers (TSU, HAT,UT, TDA)			X	
5	Grower recruitment (TSU, HAT, TDA)	X			X
6	Review of grower recruitment efforts (TSU, HAT, TDA)			X	
7	Review of on-farm and on-station soil and GHG sample collection (TSU, UT)	X			
8	Review of environmental impact analysis plans and reports (TSU, UT)	X			
9	Review of grower payments, impacts, challenges, and opportunities (TDA)	X		X	
10	Identification of on-station and on-farm GHG and soil C measurement and monitoring field sites (TSU, UT)				
11	Procurement and installation of GHG equipment on selected project sites		X		
12	Deep core soil sampling (TSU, UT)				X
13	Nutrient management and fertlity protocols decelopment (UT)				
14	Climate smart technology development and monitoring on-station and on-farm (TSU, UT)		X	X	X
15	Market identification, development, and expansion (HAT, UT, TDA)	X	X	X	X
16	GHG monitoring and assessment (TSU, UT)		X	X	X
17	Compilation of 4-year soil C and GHG database (TSU, UT)				
18	Estimation of CO2-equivalent emissions in response to fiber hemp (TSU, UT)				

Benchmarks/Milestones		Year 4 Period #11 2026 Q1 3/31/2026	Period #12 2026 Q2 6/30/2026	Period #13 2026 Q3 9/30/2026	Period #14 2026 Q4 12/31/2026
		Season #2 Season #3	Season #3	Season #3	Season #3 Season #4
Number of Producers Involved	*Per Period*	26	26	26	26
Number of Underserved Producers (~75%)	*Per Period*	19	19	19	19
Number of Acres Involved	*Per Period*	130	130	130	130
	Cummulative			375	
Dollars Provided to Producers	*Per Period*	$ 28,324	$ 28,607	$ 28,894	$ 29,183
	Cummulative	$ 242,742	$ 271,349	$ 300,243	$ 329,425
Field GHG emission monitoring intensity (number of measurements)	*Per Period*	1472	1472	1472	832
	Cummulative	14720	16192	17664	18496
Potential estimation on ton CO2-equivalent sequestration in soils	*Per Period*			2752.5	
	Cummulative	2605.7	2605.7	5358.2	5358.2
Number of New Marketing Channels (greater than)	*Per Period*		1	1	
	Cummulative	3	4	5	5
Number of Expanded Channels (greater than)	*Per Period*	0	4	5	0
Measurement tools utilized	*Per Period*	2	2	3	2
	Cummulative	23	25	28	30
Extension In-Service Trainings for Agents who serve producers.	*Per Period*	0	0	0	1
	Cummulative	3	3	3	4
Field Days and County Production Meetings	*Per Period*	1	1	0	0
	Cummulative	5	6	6	6
Extension bulletins and publications released	*Per Period*	1	0	0	1
	Cummulative	4	4	4	5
Corporate Partner Contacts (greater than)	*Per Period*				
	Cummulative	100	100	100	100
Percent of fields visited to verify practice compliance	*Per Period*	0.25	0.5	0.75	1
	Cummulative	5.25	5.75	6.5	7.5
Climate Smart Technologies employed	*Per Period*	5	5	5	5
	Cummulative				

	Other Required Benchmarks	Year 4 2026 Q1	2026 Q2	2026 Q3	2026 Q4
Outreach, Training and other Technical Assistance					
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X		X	
2	Fiber hemp management practices training developed				
3	Grower recruitment	X			X
4	Develop project website as resource for growers, partners and project team				
5	Baseline farm operation data collected on enrolled farms via survey				
6	Create producer advisory group with representatives from all regions				
7	Reflection training, trouble shooting, and other advisory meetings with growers	X		X	
8	Update project website with information from previous years			X	
9	Producer advisory group meeting		X		
10	Develop and deliver training material based on farmer survey, other material	X			

	Benchmarks/Milestones	Year 4 Period #11 2026 Q1 3/31/2026	Period #12 2026 Q2 6/30/2026	Period #13 2026 Q3 9/30/2026	Period #14 2026 Q4 12/31/2026
		Season #2 Season #3	Season #3	Season #3	Season #3 Season #4
	Other MMRV and Supply Chain Traceability Attributes				
1	Develop survey of participating farmers for crop budgets				
2	Test sruvey instrument with participating farmers for crop budgets				
3	Administer/collect data from participating farmers for crop budgets			X	
4	Report preliminary analysis of collected data				
5	Develop and deliver training material based on farmer survey, other material				X
6	Publish crop budget(s) with number warranted by conditions (rotational differences etc.)				X
7	Completion of data analysis and modeling, and dissemination through reporting and publishing.				
	Other Measurements of Work Related to Marketing of Commodities				
1	Development/Review of Marketing Plan	X			
2	Corporate Partner Consulting Engagement Scope Development				X
3	Corporate Partner Consulting Engagement Plan Execution	X			
4	Conduct Business/Economic Surveys of Corporate constituencies		X		
5	Marketing Infrastructure Development				
6	Business and Economic Analysis Reporting		X		
	Demonstrated Engagegment of Major Partners				
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X		X	
2	Development of workplans (TSU, HAT, UT, and TDA)		X		
3	Review of workplans and strategies (TSU, HAT, UT, and TDA)			X	
4	Develop recruiting information for fiber hemp producers (TSU, HAT,UT, TDA)			X	
5	Grower recruitment (TSU, HAT, TDA)	X			X
6	Review of grower recruitment efforts (TSU, HAT, TDA)			X	
7	Review of on-farm and on-station soil and GHG sample collection (TSU, UT)	X			
8	Review of environmental impact analysis plans and reports (TSU, UT)	X			
9	Review of grower payments, impacts, challenges, and opportunities (TDA)	X		X	
10	Identification of on-station and on-farm GHG and soil C measurement and monitoring field sites (TSU, UT)				
11	Procurement and installation of GHG equipment on selected project sites		X		
12	Deep core soil sampling (TSU, UT)	X			
13	Nutrient management and fertlity protocols decelopment (UT)				
14	Climate smart technology development and monitoring on-station and on-farm (TSU, UT)		X	X	X
15	Market identification, development, and expansion (HAT, UT, TDA)	X	X	X	X
16	GHG monitoring and assessment (TSU, UT)		X	X	X
17	Compilation of 4-year soil C and GHG database (TSU, UT)				
18	Estimation of CO2-equivalent emissions in response to fiber hemp (TSU, UT)				

Benchmarks/Milestones		Year 5 Period #15 2027 Q1 3/31/2027	Period #16 2027 Q2 6/30/2027	Period #17 2027 Q3 9/30/2027	Period #18 2027 Q4 12/31/2027
		Season #3 Season #4	Season #4	Season #4	Season #4
Number of Producers Involved	*Per Period*	25	25	25	25
Number of Underserved Producers (~75%)	*Per Period*	18	18	18	18
Number of Acres Involved	*Per Period*	125	125	125	125
	Cummulative			500	
Dollars Provided to Producers	*Per Period*	$ 28,341	$ 28,624	$ 28,910	$ 29,199
	Cummulative	$ 357,766	$ 386,390	$ 415,301	$ 444,500
Field GHG emission monitoring intensity (number of measurements)	*Per Period*	832	832	832	0
	Cummulative	19328	20160	20992	20992
Potential estimation on ton CO2-equivalent sequestration in soils	*Per Period*			3670	
	Cummulative	5358.2	5358.2	9028.2	9028.2
Number of New Marketing Channels (greater than)	*Per Period*			1	
	Cummulative	5	5	6	6
Number of Expanded Channels (greater than)	*Per Period*	0	0	6	0
Measurement tools utilized	*Per Period*	2	3	2	2
	Cummulative	32	35	37	39
Extension In-Service Trainings for Agents who serve producers.	*Per Period*	0	0	0	1
	Cummulative	4	4	4	5
Field Days and County Production Meetings	*Per Period*	1	1	0	0
	Cummulative	7	8	8	8
Extension bulletins and publications released	*Per Period*	1	0	1	1
	Cummulative	6	6	7	8
Corporate Partner Contacts (greater than)	*Per Period*				
	Cummulative	100	100	100	100
Percent of fields visited to verify practice compliance	*Per Period*	0.25	0.5	0.75	1
	Cummulative	7.75	8.25	9	10
Climate Smart Technologies employed	*Per Period*	5	5	5	5
	Cummulative				

	Other Required Benchmarks	Year 5 2027 Q1	2027 Q2	2027 Q3	2027 Q4
Outreach, Training and other Technical Assistance					
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X		X	
2	Fiber hemp management practices training developed				
3	Grower recruitment	X			
4	Develop project website as resource for growers, partners and project team				
5	Baseline farm operation data collected on enrolled farms via survey				
6	Create producer advisory group with representatives from all regions				
7	Reflection training, trouble shooting, and other advisory meetings with growers	X		X	
8	Update project website with information from previous years			X	
9	Producer advisory group meeting		X		
10	Develop and deliver training material based on farmer survey, other material	X			

	Benchmarks/Milestones	Year 5 Period #15 2027 Q1 3/31/2027	Period #16 2027 Q2 6/30/2027	Period #17 2027 Q3 9/30/2027	Period #18 2027 Q4 12/31/2027
		Season #3 Season #4	Season #4	Season #4	Season #4
	Other MMRV and Supply Chain Traceability Attributes				
1	Develop survey of participating farmers for crop budgets				
2	Test sruvey instrument with participating farmers for crop budgets				
3	Administer/collect data from participating farmers for crop budgets				
4	Report preliminary analysis of collected data				
5	Develop and deliver training material based on farmer survey, other material				X
6	Publish crop budget(s) with number warranted by conditions (rotational differences etc.)				
7	Completion of data analysis and modeling, and dissemination through reporting and publishing.				X
	Other Measurements of Work Related to Marketing of Commodities				
1	Development/Review of Marketing Plan	X			
2	Corporate Partner Consulting Engagement Scope Development				
3	Corporate Partner Consulting Engagement Plan Execution	X			
4	Conduct Business/Economic Surveys of Corporate constituencies		X		
5	Marketing Infrastructure Development				
6	Business and Economic Analysis Reporting		X		
	Demonstrated Engagegment of Major Partners				
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X		X	
2	Development of workplans (TSU, HAT, UT, and TDA)				
3	Review of workplans and strategies (TSU, HAT, UT, and TDA)				
4	Develop recruiting information for fiber hemp producers (TSU, HAT,UT, TDA)				
5	Grower recruitment (TSU, HAT, TDA)	X			
6	Review of grower recruitment efforts (TSU, HAT, TDA)				
7	Review of on-farm and on-station soil and GHG sample collection (TSU, UT)	X			
8	Review of environmental impact analysis plans and reports (TSU, UT)	X			
9	Review of grower payments, impacts, challenges, and opportunities (TDA)	X			
10	Identification of on-station and on-farm GHG and soil C measurement and monitoring field sites (TSU, UT)				
11	Procurement and installation of GHG equipment on selected project sites		X		
12	Deep core soil sampling (TSU, UT)				
13	Nutrient management and fertlity protocols decelopment (UT)				X
14	Climate smart technology development and monitoring on-station and on-farm (TSU, UT)		X	X	X
15	Market identification, development, and expansion (HAT, UT, TDA)	X			
16	GHG monitoring and assessment (TSU, UT)		X	X	X
17	Compilation of 4-year soil C and GHG database (TSU, UT)	X			
18	Estimation of CO2-equivalent emissions in response to fiber hemp (TSU, UT)	X			

Benchmarks/Milestones		Year 6 Period #19 2028 Q1 3/31/2028	Year 6 Period #20 2028 Q2 6/30/2028
		Season #4	Wrap
Number of Producers Involved	*Per Period*	0	0
Number of Underserved Producers (~75%)	*Per Period*	0	0
Number of Acres Involved	*Per Period*	0	0
	Cummulative		
Dollars Provided to Producers	*Per Period*	$ -	$ -
	Cummulative	$ 444,500	$ 444,500
Field GHG emission monitoring intensity (number of measurements)	*Per Period*	0	
	Cummulative	20992	20992
Potential estimation on ton CO2-equivalent sequestration in soils	*Per Period*		
	Cummulative	9028.2	9028.2
Number of New Marketing Channels (greater than)	*Per Period*		
	Cummulative	6	6
Number of Expanded Channels (greater than)	*Per Period*	0	0
Measurement tools utilized	*Per Period*	3	0
	Cummulative	42	42
Extension In-Service Trainings for Agents who serve producers.	*Per Period*	0	0
	Cummulative	5	5
Field Days and County Production Meetings	*Per Period*	1	1
	Cummulative	9	10
Extension bulletins and publications released	*Per Period*	0	
	Cummulative	8	8
Corporate Partner Contacts (greater than)	*Per Period*		
	Cummulative	100	100
Percent of fields visited to verify practice compliance	*Per Period*	0	0
	Cummulative	10	10
Climate Smart Technologies employed	*Per Period*	5	5
	Cummulative		

	Other Required Benchmarks	Year 6 2028 Q1	2028 Q2
Outreach, Training and other Technical Assistance			
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X	X
2	Fiber hemp management practices training developed		
3	Grower recruitment		
4	Develop project website as resource for growers, partners and project team		
5	Baseline farm operation data collected on enrolled farms via survey		
6	Create producer advisory group with representatives from all regions		
7	Reflection training, trouble shooting, and other advisory meetings with growers	X	
8	Update project website with information from previous years		
9	Producer advisory group meeting		
10	Develop and deliver training material based on farmer survey, other material		

Benchmarks/Milestones		Year 6 Period #19 2028 Q1 *3/31/2028*	Year 6 Period #20 2028 Q2 *6/30/2028*
		Season #4	Wrap
Other MMRV and Supply Chain Traceability Attributes			
1	Develop survey of participating farmers for crop budgets		
2	Test sruvey instrument with participating farmers for crop budgets		
3	Administer/collect data from participating farmers for crop budgets		
4	Report preliminary analysis of collected data		
5	Develop and deliver training material based on farmer survey, other material		
6	Publish crop budget(s) with number warranted by conditions (rotational differences etc.)		
7	Completion of data analysis and modeling, and dissemination through reporting and publishing.		
Other Measurements of Work Related to Marketing of Commodities			
1	Development/Review of Marketing Plan		
2	Corporate Partner Consulting Engagement Scope Development		
3	Corporate Partner Consulting Engagement Plan Execution		
4	Conduct Business/Economic Surveys of Corporate constituencies		
5	Marketing Infrastructure Development		
6	Business and Economic Analysis Reporting		
Demonstrated Engagegment of Major Partners			
1	Meeting of all project partners including TSU and UT Extension Specialists, MMRV team, and Economists, as well as HAT, and TDA.	X	X
2	Development of workplans (TSU, HAT, UT, and TDA)		
3	Review of workplans and strategies (TSU, HAT, UT, and TDA)		
4	Develop recruiting information for fiber hemp producers (TSU, HAT,UT, TDA)		
5	Grower recruitment (TSU, HAT, TDA)		
6	Review of grower recruitment efforts (TSU, HAT, TDA)		
7	Review of on-farm and on-station soil and GHG sample collection (TSU, UT)		
8	Review of environmental impact analysis plans and reports (TSU, UT)		
9	Review of grower payments, impacts, challenges, and opportunities (TDA)		
10	Identification of on-station and on-farm GHG and soil C measurement and monitoring field sites (TSU, UT)		
11	Procurement and installation of GHG equipment on selected project sites		
12	Deep core soil sampling (TSU, UT)		
13	Nutrient management and fertlity protocols decelopment (UT)		
14	Climate smart technology development and monitoring on-station and on-farm (TSU, UT)		
15	Market identification, development, and expansion (HAT, UT, TDA)		
16	GHG monitoring and assessment (TSU, UT)		
17	Compilation of 4-year soil C and GHG database (TSU, UT)		
18	Estimation of CO2-equivalent emissions in response to fiber hemp (TSU, UT)		

Climate-Smart Practices and Limitations

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

NRCS Practice Code	Practice Name
328	Conservation Crop Rotation
329	Residue and Tillage Management, No Till
340	Cover Crop
345	Residue and Tillage Management, Reduced Till
590	Nutrient Management

Partnerships for Climate-Smart Commodities Data Dictionary for Recipients

February 2023

Version 1.0

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

Table of Contents

Overview of Reporting Requirements

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

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

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

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

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

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

Project Summary

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

Table 1. Project Summary elements

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

Partner Activities

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

Table 2. Partner Activities elements

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

Marketing Activities

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

Table 3. Marketing Activities elements

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

Producer Enrollment

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

Table 4. Producer Enrollment elements

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

Field Enrollment

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

Table 5. Field Enrollment elements

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

Farm Summary

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

Table 6. Farm Summary elements

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

Field Summary

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

Table 7. Field Summary elements

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

GHG Benefits - Alternate Modeled

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

Table 8. GHG Benefits – Alternate Modeled elements

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

GHG Benefits - Measured

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

Table 9. GHG Benefits - Measured data elements

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

Additional Environmental Benefits

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

Table 10. Additional Environmental Benefits elements

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

Supplemental Data Submission

Project MMRV Plan

Definition of MMRV elements:

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

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

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

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

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

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

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

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

Field modeled GHG benefit reports

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

Field direct measurement results

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

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

Data Descriptions

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

Unique IDs

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

Project Summary

Commodity type

Data element name: Commodity type

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: FSA commodity list

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Commodity sales

Data element name: Commodity sales

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Farms enrolled

Data element name: Farms enrolled

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG calculation methods

Data element name: GHG calculation methods

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Models
- Direct field measurements
- Both

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG cumulative calculation

Data element name: GHG cumulative calculation

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Models
- Direct field measurements
- Both

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative GHG benefits

Data element name: Cumulative GHG benefits

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative carbon stock

Data element name: Cumulative carbon stock

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative CO2 benefit

Data element name: Cumulative CO2 benefit

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative CH4 benefit

Data element name: Cumulative CH4 benefit

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CH4 reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cumulative N20 benefit

Data element name: Cumulative N2O benefit

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons N2O reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Offsets produced

Data element name: Offsets produced

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Offsets sale

Data element name: Offsets sale

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

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

Data type: Text

Select multiple values: NA

Measurement unit: Name

Allowed values: Text

Logic: Respond if >0 to 'Offsets produced'

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Offsets price

Data element name: Offsets price

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars per metric ton

Allowed values: 0-500

Logic: Respond if >0 to 'Offsets produced'

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Insets produced

Data element name: Insets produced

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Cost of on-farm TA

Data element name: Cost of on-farm TA

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

MMRV cost

Data element name: MMRV cost

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG monitoring method

Data element name: GHG monitoring 1-5

Reporting question: How did the project monitor GHG benefits?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG reporting method

Data element name: GHG reporting 1-5

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

GHG verification method

Data element name: GHG verification method 1-5

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Partner Activities

Unique IDs	
Partner ID	Unique Project ID for each partner

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

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

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

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

Partnership start date

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

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

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

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

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

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

Partnership end date

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

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

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

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

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

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

New partnership

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

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

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

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

- Yes
- No
- I don't know

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

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

Partner total requested

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

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

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

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

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

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

Total match contribution

Data element name: Total match contribution

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

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

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Total match incentives

Data element name: Total match incentives

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

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

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Match type

Data element name: Match type 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Match amount

Data element name: Match amount 1-3

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

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

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Training type provided

Data element name: Training type 1-3 provided

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Activity by partner

Data element name: Activity 1-3 by partner

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Partner

Data collection frequency: Quarterly

Activity cost

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

Products supplied

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

Product source

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

Marketing Activities

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

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

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

Names of buyers

Data element name: Names of buyers

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

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

Data type: Text

Select multiple values: NA

Measurement unit: Name

Allowed values: Text

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Marketing channel geography

Data element name: Marketing channel geography

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Local
- Regional
- National
- Global

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Value sold

Data element name: Value sold

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Volume sold

Data element name: Volume sold

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Number

Allowed values: 1-100,000,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Volume sold unit

Data element name: Volume sold unit

Reporting question: What is the unit of volume?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Price premium

Data element name: Price premium

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

Allowed values: $0.01-$10,000

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Price premium unit

Data element name: Price premium unit

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Price premium to producer

Data element name: Price premium to producer

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Percent

Allowed values: 0-100

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Product differentiation method

Data element name: Product differentiation method 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Marketing method

Data element name: Marketing method 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Marketing channel identification method

Data element name: Marketing channel identification method 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Traceability method

Data element name: Traceability method 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Project

Data collection frequency: Quarterly

Producer Enrollment

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

Producer data change

Data element name: Producer data change

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Re-enrollment

Producer start date

Data element name: Producer start date

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

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

Data type: Date

Select multiple values: NA

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

Producer name

Data element name: Producer name

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

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

Data type: Text

Select multiple values: NA

Measurement unit: NA

Allowed values: Text

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

Underserved status

Data element name: Underserved status

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: No

Data collection level: Producer

Data collection frequency: Initial enrollment

Total area

Data element name: Total area

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

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

Total crop area

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

Total livestock area

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

Total forest area

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

Livestock type

Data element name: Livestock type 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if 'Total livestock area' >0

Required: Yes

Data collection level: Producer

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

Livestock head

Data element name: Livestock head 1-3

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

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

Data type: Integer

Select multiple values: NA

Measurement unit: Head count

Allowed values: 1-10,000,000

Logic: Respond if 'Total livestock area' >0

Required: Yes

Data collection level: Producer

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

Organic farm

Data element name: Organic farm

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: No

Data collection level: Producer

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

Organic fields

Data element name: Organic fields

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Organic operation'

Required: No

Data collection level: Producer

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

Producer motivation

Data element name: Producer motivation

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

Producer outreach

Data element name: Producer outreach 1-3

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

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

Data type: List

Select multiple values: Yes

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF experience

Data element name: CSAF experience

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF federal funds

Data element name: CSAF federal funds

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don’t know

Logic: Respond if yes to 'CSAF experience'

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF state or local funds

Data element name: CSAF state or local funds

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don’t know

Logic: Respond if yes to 'CSAF experience'

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF nonprofit funds

Data element name: CSAF nonprofit funds

Reporting question: Were CSAF practices supported by nonprofit funds?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don’t know

Logic: Respond if yes to 'CSAF experience'

Required: Yes

Data collection level: Producer

Data collection frequency: Initial enrollment

CSAF market incentives

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

Field Enrollment

Unique IDs

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

Field data change

Data element name: Field data change

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Re-enrollment

Contract start date

Data element name: Contract start date

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

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

Data type: Date

Select multiple values: NA

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Total field area

Data element name: Total field area

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Acres

Allowed values: .01-500

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Commodity category

Data element name: Commodity category

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Commodity type

Data element name: Commodity type

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: FSA commodity list

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Baseline yield

Data element name: Baseline yield

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Production per acre or animal

Allowed values: .01-100,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Baseline yield unit

Data element name: Baseline yield unit

Reporting question: Baseline yield unit

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Baseline yield location

Data element name: Baseline yield location

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Enrolled field
- Whole operation
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Field land use

Data element name: Field land use

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Field irrigated

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

Field tillage

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

Practice past extent - farm

Data element name: Practice past extent - farm

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Field any CSAF practice

Data element name: Field any CSAF practice

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice past use - this field

Data element name: Practice past use - this field

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice type

Data element name: Practice type 1-7

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: See list in Appendix A

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice standard

Data element name: Practice standard 1-7

Reporting question: What standard does the CSAF practice follow?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- NRCS
- Other (specify)

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Planned practice implementation year

Data element name: Practice 1-7 implementation year

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

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

Data type: Integer

Select multiple values: No

Measurement unit: Year

Allowed values: 2022-2030

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

Practice extent

Data element name: Practice 1-7 extent

Reporting question: To what extent is the practice implemented?

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

Data type: Decimal

Select multiple values: No

Measurement unit: Extent

Allowed values: .01-100,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Initial enrollment

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

CSAF Practice Sub-questions

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

Farm Summary

Unique IDs

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

Producer TA received

Data element name: Producer TA received 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Producer incentive amount

Data element name: Producer incentive amount

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

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

Data type: Decimal

Select multiple values: NA

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Incentive reason

Data element name: Incentive reason 1-4

Reporting question: Why were incentives provided to this producer?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Incentive structure

Data element name: Incentive structure 1-4

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Incentive type

Data element name: Incentive type 1-4

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on enrollment

Data element name: Payment on enrollment

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on implementation

Data element name: Payment on implementation

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on harvest

Data element name: Payment on harvest

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on MMRV

Data element name: Payment on MMRV

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Payment on sale

Data element name: Payment on sale

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Full payment
- Partial payment
- No payment

Logic: None – all respond

Required: Yes

Data collection level: Producer

Data collection frequency: Quarterly

Field Summary

Unique IDs

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

Commodity type

Data element name: Commodity type

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: FSA commodity list

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Practice type

Data element name: Field practice type 1-7

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values: See list in Appendix A

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Date practice complete

Data element name: Date practice complete

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

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

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Contract end date

Data element name: Contract end date

Reporting question: Contract end date

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

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

MMRV assistance provided

Data element name: MMRV assistance provided

Reporting question: Was MMRV assistance provided?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Marketing assistance provided

Data element name: Marketing assistance provided

Reporting question: Was marketing assistance provided?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Incentive per acre or head

Data element name: Incentive per acre or head

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field commodity value

Data element name: Field commodity value

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field commodity volume

Data element name: Field commodity volume

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Number

Allowed values: 1-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field commodity volume unit

Data element name: Field commodity volume unit

Reporting question: What is the unit of volume?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Cost of implementation

Data element name: Cost of implementation

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Dollars

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Cost unit

Data element name: Cost unit

Reporting question: What is the unit for cost?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Cost coverage

Data element name: Cost coverage

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

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

Data type: Integer

Select multiple values: No

Measurement unit: Percent

Allowed values: 0-100

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG monitoring

Data element name: Field GHG monitoring 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG reporting

Data element name: Field GHG reporting 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG verification

Data element name: Field GHG verification 1-3

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field GHG calculations

Data element name: Field GHG calculations

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Models
- Direct field measurements
- Both

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official GHG calculation

Data element name: Field official GHG calculation

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:
- Models
- Direct field measurements

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official GHG ER

Data element name: Field official GHG emission reductions

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official carbon stock

Data element name: Field official carbon stock

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official CO2 ER

Data element name: Field official CO2 emission reductions

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official CH4 ER

Data element name: Field official CH4 emission reductions

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CH4 reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field official N20 ER

Data element name: Field official N2O emission reductions

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons N2O reduced in CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field offsets produced

Data element name: Field offsets produced

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Quarterly

Field insets produced

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

Other field measurement

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

GHG Benefits - Alternate Modeled

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

Commodity type

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

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

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

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

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

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

Practice type

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

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

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

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

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

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

GHG model

Data element name: GHG model

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: If project calculates GHG benefits using multiple methods

Data collection level: Field

Data collection frequency: Annual

Model start date

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

Model end date

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

Total GHG benefits estimated

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

Total carbon stock estimated

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

Total CO2 estimated

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

Total CH4 estimated

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

Total field N20 estimated

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

GHG Benefits - Measured

Unique IDs

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

GHG measurement method

Data element name: GHG measurement method

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Lab name

Data element name: Lab name

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

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

Data type: Text

Select multiple values: No

Measurement unit: NA

Allowed values: Free text

Logic: None – all respond

Required: If applicable

Data collection level: Field

Data collection frequency: Annual

Measurement start date

Data element name: Measurement start date

Reporting question: On what date did the measurement start?

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

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Measurement end date

Data element name: Measurement end date

Reporting question: On what date did the measurement end?

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

Data type: Date

Select multiple values: No

Measurement unit: MM/DD/YYYY

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

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Total CO2 reduction calculated

Data element name: Total CO2 reduction calculated

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2

Allowed values: 0-10,000,000

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Total field carbon stock measured

Data element name: Total field carbon stock measured

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Metric tons CO_2eq

Allowed values: 0-10,000,000

Logic: None – all respond

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

Data collection level: Field

Data collection frequency: Annual

Total CH4 reduction calculated

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

Total N20 reduction calculated

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

Soil sample result

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

Soil sample result unit

Data element name: Soil sample result unit

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: If a project conducts soil samples in this field

Data collection level: Field

Data collection frequency: Annual

Measurement type

Data element name: Measurement type

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: None – all respond

Required: If a project conducts soil samples in this field

Data collection level: Field

Data collection frequency: Annual

Additional Environmental Benefits

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

Environmental benefits

Data element name: Environmental benefits

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: None – all respond

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss

Data element name: Reduction in nitrogen loss

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss amount

Data element name: Reduction in nitrogen loss amount

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

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

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduction in nitrogen loss amount unit

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

Reduction in nitrogen loss purpose

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

Reduction in phosphorus loss

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

Reduction in phosphorus loss amount

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

Reduction in phosphorus loss amount unit

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

Reduction in phosphorus loss purpose

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

Other water quality

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

Other water quality type

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

Other water quality amount

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

Other water quality amount unit

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

Other water quality purpose

Data element name: Other water quality purpose

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if yes to 'Other water quality'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Water quantity

Data element name: Water quantity

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Water quantity amount

Data element name: Water quantity amount

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Water quantity'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Water quantity amount unit

Data element name: Water quantity amount unit

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if yes to 'Water quantity'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Water quantity purpose

Data element name: Water quantity purpose

Reporting question: What is the purpose of tracking water conservation?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if yes to 'Water quantity'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduced erosion

Data element name: Reduced erosion

Reporting question: Is reduced soil erosion being tracked in the field?

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduced erosion amount

Data element name: Reduced erosion amount

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Reduced erosion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduced erosion amount unit

Data element name: Reduced erosion unit

Reporting question: What is the unit for the amount of erosion reduction measured?

Description: Unit for the total amount of erosion reduction from enrolled fields that is measured and reported by the project. If "other" is chosen, enter the appropriate value as free text in the additional column.

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Tons
- Other (specify)

Logic: Respond if yes to 'Reduced erosion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Reduced erosion purpose

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

Reduced energy use

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

Reduced energy use amount

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

Reduced energy use amount unit

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

Reduced energy use purpose

Data element name: Reduced energy use purpose

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if yes to 'Reduced energy use'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion

Data element name: Avoided land conversion

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion amount

Data element name: Avoided land conversion amount

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Avoided land conversion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion amount unit

Data element name: Avoided land conversion unit

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Acres
- Other (specify)

Logic: Respond if yes to 'Avoided land conversion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Avoided land conversion purpose

Data element name: Avoided land conversion purpose

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

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

Logic: Respond if yes to 'Avoided land conversion'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat

Data element name: Improved wildlife habitat

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Yes
- No
- I don't know

Logic: Respond if yes to 'Environmental benefits'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat amount

Data element name: Improved wildlife habitat amount

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

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

Data type: Decimal

Select multiple values: No

Measurement unit: Amount

Allowed values: 0-1,000,000

Logic: Respond if yes to 'Improved wildlife habitat'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

Improved wildlife habitat amount unit

Data element name: Improved wildlife habitat unit

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

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

Data type: List

Select multiple values: No

Measurement unit: Category

Allowed values:

- Acres
- Linear feet
- Other (specify)

Logic: Respond if yes to 'Improved wildlife habitat'

Required: Yes

Data collection level: Field

Data collection frequency: Annual

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

CSAF Practice Sub-questions

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

Table 11. Follow-on questions for select CSAF practices

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

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

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

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

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

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

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

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

Appendix A: Climate-smart Agriculture and Forestry Practices

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

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

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

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

Appendix B: Commodity List

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

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

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

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

I. Overarching Statement

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

II. Eligibility and Highly Erodible Lands and Wetlands Compliance

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

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

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

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

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

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

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

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

III. Other Environmental and Cultural Resources Reviews

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

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

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

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

IV. Producer Benefits

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

V. Producer Data Protection and Disclosure

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

VI. Other Data and Reporting Requirements

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

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

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

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

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

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

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

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

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

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

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

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

VII. Competition and Anti-Competitive Practices

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

VIII. Suspension and Disbarment

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

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

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

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

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

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

X. Non-Disparagement

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