



Request for Proposals: Data Solutions Provider for Climate Smart Pilot Projects

Company Name: International Fresh Produce Association

Posting date: 19 September 2023

Due Date: 4 weeks from posting date

Introduction

The International Fresh Produce Association (IFPA) is a 501(c)(6) non-profit that includes over 3,000 member companies along the entire fresh produce and floral supply chain. IFPA assists its members through advocating on their behalf to global decision makers and consumer-facing entities, connecting them with each other, buyers, and consumers and guiding them to identify existing and emergent needs as well as solutions for these needs. Recently, IFPA received a Climate Smart Pilots grant from USDA and now seeks a contractor to assist with meeting data-related objectives of the project. Therefore, IFPA is issuing this Request for Proposals (RFP) to create a suite of web-based software solutions that can capture agronomic input and climate-related output data resulting from field trials, leading to the award of a cost-reimbursable contract.

Project Overview

IFPA is leading a USDA grant-funded Partnerships for Climate-Smart Commodities project titled "A vibrant future: Pilot projects for climate-smart fruit and vegetable production, marketing, and valuation of ecosystem service". The project is funded for 5 years. The long-term goal of the project is to incentivize adoption of climate-smart production practices for specialty crops and to document inputs and environmental benefits associated with the adoption. Aligned with the long-term goal, the goal of this project is to facilitate implementation of climate-smart production practices by specialty crop growers and to develop robust tools for the measurement of inputs, outputs (climate-smart ecosystem services) and yields, to ultimately put in place systems for traceability, verification, and marketing of climate-smart commodities.

The project team is led by Dr. Max Teplitski, Chief Science Officer of IFPA. Project collaborators include the University of Florida and Alcorn State University, Measure to Improve and Frehner Jens consulting company.

Project goals

The data company selected to take part in this project will be instrumental in meeting the following objectives of the project: (1) to document progress and outcomes of adoption of CSAF practices, data on field characteristics, practices and inputs, yield, and ecosystem services (including sequestered carbon (C), reduced fertilizer use, change in energy use) resulting from the adoption of climate-smart practices will be collected and climate-smart management practices and/or technologies adopted by the growers; (2) to build an auditable system for the verification of practice adoption through leveraging already existing food safety traceability standards, which allows tracking of production lots of produce.

To this end, the data will be stored in a project-centered, secure cloud database accessible by project participants and compatible with training and evaluation of artificial intelligence (AI)-enabled soil health and ecosystem services models and dashboard reporting. Data collected will be formatted and submitted to a COMET carbon model API and an academic partner for results to be associated with the participating farmers' practices, and fields for analysis to monitor practices and outcomes.

The selected solutions provider will leverage existing platforms to develop tools for tracking and documenting environmental impacts resulting from the implementation of climate-smart production practices, with the goal of establishing trust in the markets of climate-smart commodities. The tool must have the capacity for digital routine monitoring of adoption of practice implementation by tracking inputs and outputs of carbon and greenhouse gases.

It is expected that the selected contractor will deploy or leverage mobile or web applications for monitoring performance and documenting every field activity and input as well as conducting surveys on individual fields. The verification of GHG emission reductions due to the adoption of climate-smart practices in specialty crops will include in-situ measurements, remote sensing (Sentinel-5P and NASA's Orbiting Carbon Observatory, OCO-2 satellite data) and AI modeling (the latter will be carried out by an academic partner), and while there is no expectation that the data service provider contract will collect these data, the software solution must be suitable for a seamless upload or harvest of this information. Ideally platforms will be suitable for uploads of data in a variety of formats, including field photos and sketches to allow remote monitoring of practice implementation, weather and other data from publicly available servers, hyperspectral data of soils, and downloads/uploads of batch data from third parties (i.e., testing labs), be user-friendly and intuitive. Data gathered will be used in models such as those in COMET and proprietary models (e.g., machine learning models) developed by an academic partner, providing protocol conformance, monitoring progress, and documenting protocol positive/negative performance against target goals.

The selected provider will develop training for the end-users and will provide timely technical support.

The project will employ a cloud database that will store soil, spectral, crop, management, and water use data that are secure, versatile, scalable, and maintain confidentiality of farm-specific datasets. These data will support carbon and ecosystem services modeling across multiple farms, soils, crops, and climatic regions within the project domain.

IFPA recognizes that no single tool may have all of the above desired characteristics and options. Applicants are invited to carefully review the scope of work and evaluation criteria. The successful applicants must be open to opportunities for continuous improvement of the tool during the project.

Scope of Work/ Deliverables/ Project requirements

Data & Infrastructure

The data that we aim to collect can be separated into the following categories: (1) reporting and accounting, (2) soil properties, (3) environmental conditions, and (4) practice specific data points. Refer to the Appendix for a more detailed example of data points to be collected and stored by the selected software solution provider throughout the project duration. Please note that these are examples of data to be collected.

All data will be stored in a project-centered cloud database ("IFPA Cloud"). Approved cloud infrastructure providers include AWS, Azure, or Google. The bidder must name IFPA as an owner of the IFPA Cloud infrastructure subscription (and related data) and work with IFPA to provision all relevant permissions to IFPA and selected partners. If the solution involves the use of third-party commercial software, similar rights and ownership must be registered with the 3rd party software company, and exports of the software (including internal id's) must be backed up to the IFPA cloud no less frequently than weekly.

SLA & Disaster Recovery

It is expected that the selected contractor will provide a commercially standard service level and will include a copy of a standard form SLA in their response. The contractor will carry out routine backups to facilitate disaster recovery as is commercially reasonable. Please also include a description of the standard backup and disaster recovery protocol and testing routines. The contractor shall test all backup and disaster recovery routines and provide attestation to IFPA no less frequently at 90-days and annually thereafter. The contractor shall also provide access to the IFPA team in order to perform annual assessment of the syst and document review and attestation. Any necessary changes based on

assessments or tests shall be completed by the contractor within 2 weeks of the request from IFPA. The contract shall also include a statement that all personnel, equipment, software, services are compliant with them.

Applications

It is expected that the selected contractor will deploy mobile optimized applications for monitoring performance and documenting field activities. This includes but is not limited to the class of field and activity data, their attributes, environmental information, and related agronomic inputs. The solution will also be the primary method for conducting surveys on individual fields and activities.

The selected contractor will deploy, manage, and support an interoperable solution that focuses on a positive user experience. For the purpose of this project there will be grower, advisor, researcher, administrative, and master users. The solution must be able to limit reading, writing, and/or sharing access to data based on the user role. The selected contractor should take into consideration the specific sharing limitations and requirements when configuring and implementing the solution.

The solution shall enable 'seamless' data integration from several sources, specifically, common industry formats for third-party as-applied (application record) data, fertilizer blend data, ag retail invoices, and MODUS soil lab analysis, soil spectral analyses. Additionally, the system shall use its best efforts to support open-source schemas for field boundaries, weather and environmental data to facilitate interoperability with other relevant data from public or other sources.

The solution shall be suitable for uploads of data in a variety of formats, including field photos and sketches to allow remote monitoring of practice implementation, weather and other data from publicly available servers, and downloads/uploads of batch data from third parties (e.g. application records and lab analysis). The selected solutions provider will be a participant in conversations with 3rd party data providers (e.g. soil testing labs) to develop workable protocols for direct data upload into the tool.

The software tools shall be of commercial grade, user-friendly, and intuitive to operate. Contractor shall provide training, support and ongoing service for the application(s) during regular commercial hours, Monday through Friday, 0600 to 1700 PST, exclusive of Federal Holidays.

Interoperability

A key element of the solution will be its ability to interoperate with industry standard soil health and ecosystem services models such as COMET. For research and model validation purposes, it is a requirement to maintain the lineage of the data to support eventual auditing of the results.

Data collected will be formatted and submitted to a COMET tool in an automated fashion via an API. The response(s) shall be stored in the IFPA Cloud and directly associated with the original data package posted to the calculator, together with the related participating farmers, their practices, and field attributes.

The contractor will be chiefly responsible for defining, implementing, and supporting the interface between the IPFA Cloud and COMET system through the term of the project. This may include but not be limited to interoperability with other program partners who will calculate certain data inputs required for submission to a COMET tool. For example: certain data may be shared privately with a research partner who will calculate and provide data inputs to be associated with a unique data set, which would then be archived as a complete 'package' and submitted to COMET.

Interoperability is paramount as certain data will be formatted and submitted to other program partners. These data should be optimized for AI modeling in accordance with the specifications provided. It is the aim of the project that the data collected will allow for AI predictive modeling and uncertainty assessment of soil and crop health, carbon sequestration, GHG emission reduction, and ecosystem services at regional scale by 3rd parties.

Deadline for Submission

Proposals should be received no later than 4 weeks from posting date by COB. **Packages should be emailed to: smarques@freshproduce.com**

Deadline for bidders to submit questions: one week from posting

Deadline for bidders to request NDA (optional): one week from posting

Response to bidder questions: within 24 business hours

Selection of top bidders/ notification of unsuccessful bidders: December 1, 2023

Presentation to the project team: 4-5 weeks from posting date

Start of negotiation: 5-6 weeks from posting date

Contract award: November 30, 2023

Point of Contact

Respondents shall restrict all contact and questions regarding this RFP and selection process to Sophie Marques. Contact via email at smarques@freshproduce.com (preferred) or call at (302)-607-2142.

Submission Requirements

Applicants should submit a thoughtful, clear and well-organized proposal package (up to 5 pages) that includes a description of how they plan to take part in the project, plans for data architecture, ability to capture all or most of the data needs described, with detailed descriptions of each deliverable. The data architecture shall include relationships among tables and in all cases where possible specifically support universally unique identifiers and geo-reference data at the most granular level as is practical. Please include a projected budget for the creation and use of the mobile and web platform, key team member resumes (no longer than 2 pages per key team member, in addition to the 5-page proposal), and examples of the software platform work comparable to this project (document or web link).

Selected finalists will be invited to give a 30-45 min presentation (via zoom or a similar web platform) to the selection team, and the selected finalists should be open to iterative conversations about the evolving needs of the projects. Upon completion of this selection step with project stakeholders, the applicant will submit a revised data architecture diagram and schema based on the requirements herein and the example data fields provided in Appendix A. The architecture and schema shall be approved by IFPA prior to the execution of the contract and/or implementation.

Privacy

As it pertains to this project and all related data, the service provider is expected to assure adherence to the strict data privacy and security standards as defined in the contract. Please include a copy of your standard privacy policy and data security and governance policies with your response (in addition to the 5-page proposal package).

NDA

Non-disclosure agreements (NDAs) are not required by IFPA to submit a proposal or to be engaged in pre-contract discussions. However, IFPA will review and consider reasonable NDA that follow industry standards prior to the submission of the proposal. Please note a deadline for NDA request.

Evaluation Metrics and Criteria

(In order from highest priority to lowest):

(1) Quality and user-friendliness of measurement, reporting and validation services that include (but are not limited to):

(a) facilitation of collection and upload of field data by the growers (cropping system, climate smart and other management practices used) in a web-based and mobile tool, (b) provisions for quality control of uploaded data, (c) considerations for site specific association of all data gathered, (d) approaches for transformation and upload of data on carbon sequestered and GHG benefits as a function of climate-smart production practices into a COMET tool, (e) transformation and delivery of data to an academic partner, suitable for re-upload of the transformed data from an academic partner for upload into a COMET tool , (f) leveraging existing food safety traceability system for tracking ecosystem services, (g) automated generation of on-demand reports for growers and project participants, (h) interoperability with other solutions common in the industry to manage activities, events and laboratory analyses

(2) Qualifications of the project team

(3) Partnering

(4) Alignment of this project with the bidder's long-term growth strategy.

(5) Project cost

Budget Amount

The contract for the chosen data company will be cost-reimbursable, with \$1,272,771 set aside in the current project budget.

Proposal Reviews/ Selection

A panel of experts in areas including sustainability, supply chain, and agricultural research and technology industries will review the proposals and be involved in the final interview process. Finalists being solicited for this RFP will be asked to conduct 30-45 min presentations and time for Q&A in November/December 2023. Consideration is expected to be given, but is not guaranteed to be given, to the weighted criteria listed on this page. Evaluation criteria are subject to change with reasonable notice to applicants.

APPENDIX

Examples of data to be gathered, stored and moved by the software solutions provider.

Table 1. Reporting and Accounting

Data collected	Schema (alpha-numeric, binary, image, follows specific convention, etc)	Source of data	Data flow within the project	Destinations for data				Other uses for the data
				Goes to COMET	Goes to USDA for reporting	Goes to UF for modeling	Gets stored on the cloud	
Dollars paid to the growers	currency	IFPA		no	yes	no	yes	
GPS of where soil samples collected (lat/long, WGS84)	GPS coordinates			?	no	yes	yes	To be associated with soil samples
GPS of sites where practices are implemented (lat/long, WGS84)	GPS coordinates			?	no	yes	yes	To be associated with soil samples
Project Summary								
commodity type	alphanumeric	FSA commodity	cumulative (each commodity in project)	no	yes	yes	yes	
commodity sales	binary	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
farm enrolled	binary	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
GHG calculation methods	choose 1 (models, direct field measurements, both)	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
GHG cumulative calculation method	choose 1 (models, direct field measurements, both)	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
cumulative GHG benefits (whole project estimate of total GHG emission)	metric tons	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	calculated at UF
cumulative carbon stock (whole project estimate of total carbon sequestration)	metric tons	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	calculated at UF
cumulative CO2 benefit (whole project estimate of total CO2 emission reduction)	metric tons	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	calculated at UF
Cumulative CH4 benefit (estimate of total CH4 emission reduction)	metric tons	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	calculated at UF
cumulative N2O benefit (estimate of total N2O emission reduction)	metric tons	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	calculated at UF
offsets produced	metric tons	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	calculated at UF
offsets sale	name of marketplace	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
offsets price	dollars per metric ton (0-500)	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
carbon insets produced	metric tons	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
cost of on-farm TA (technical assistance) to producers	dollars	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
MMRV cost	dollars	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
GHG monitoring method	choose up to 5 (on farm visit, r	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
if other, specify	alphanumeric	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
GHG reporting method	choose up to 5 (mobile app, w	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
if other, specify	alphanumeric	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
GHG verification method	choose up to 5 (third party auc	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
if other, specify	alphanumeric	IFPA	cumulative (each commodity in project)	no	yes	yes	yes	
Producer Information								
farm ID	alphanumeric	assigned by FSA	each farm, entered upon enrollment or upon data change	no	yes	yes	yes	
state of residence	alphanumeric	grower	each farm, entered upon enrollment or upon data change	no	yes	yes	yes	
county of residence	alphanumeric	grower	each farm, entered upon enrollment or upon data change	no	yes	yes	yes	
producer contract start date	date	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
producer name	alphanumeric	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
underserved status	choose 1 (no, yes underserved)	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
total farm area	acres	grower	each farm, entered upon enrollment or upon data change	no	yes	yes	yes	SISC habitat & biodiversity metric
total crop area (total area with seasonal or annual cover or row crops, perennials)	acres	grower	each farm, entered upon enrollment or upon data change	no	yes	yes	yes	SISC habitat & biodiversity metric
total livestock area (confinement, pasture, rangeland)	acres	grower	each farm, entered upon enrollment or upon data change	no	yes	yes	yes	
total forest area	acres	grower	each farm, entered upon enrollment or upon data change	no	yes	yes	yes	
livestock type	choose up to 3	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
livestock head (for each livestock type)	alphanumeric	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
organic operation	binary	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
organic fields	binary	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
producer motivation for participation	choose 1 (financial benefit, em	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
producer outreach types provided	up to 3 (conferences, print res	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
if other, specify	alphanumeric	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
Prior CSAF experience	binary	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
CSAF federal funds	binary	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
CSAF state or local funds	binary	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
CSAF non profit funds	binary	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
CSAF market incentives	binary	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
Practice implementation start date	date	grower	each farm, entered upon enrollment or upon data change	no	yes	yes	yes	
producer technical assistance received	choose up to 3 (field visits, gro	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
producer incentive amount	dollars	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
incentive reason for project participation	choose up to 4 (enrollment, im	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
incentive structure	choose up to 4 (per area, per h	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
incentive type	choose up to 4 (cash payment, gro	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
payment on enrollment	choose 1 (full, partial, none)	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
payment on implementation	choose 1 (full, partial, none)	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
payment on harvest	choose 1 (full, partial, none)	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
payment on MMRV	choose 1 (full, partial, none)	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
payment on sale	choose 1 (full, partial, none)	grower	each farm, entered upon enrollment or upon data change	no	yes	no	yes	
farm ID	alphanumeric	assigned by FSA	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
tract ID	alphanumeric	assigned by FSA	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
field ID	alphanumeric	assigned by FSA	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
state of field	alphanumeric	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
county of field	alphanumeric	FSA farm record	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
total field area	acres	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	SISC habitat & biodiversity metric
contract start date	date	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
total field area under CSAF practice under this project	acres	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
size of patches of on-farm natural vegetation (not been cropped in >1 year)	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
number of on-farm natural vegetation patches	alphanumeric	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
size of patched of natural vegetation in area around farm	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
size of farm fields in area around farm	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
number of patches of natural habitat in farms in your neighborhood	alphanumeric	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
natural woodland forest (>30% canopy cover)	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
farm area built/ developed (buildings, roads, pavement, work yards)	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
open water/ wetland area (wetlands, rivers, ponds, marshes)	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
reporting year	year	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
farm area non cropped (sum of forest, grassland, open water)	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
natural riparian area (vegetation dominated by grasses, shrubs, trees adjacent to water)	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
farm area cropped- perennial	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
natural grassland/ scrub area	acres	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
follow up questions	binary	grower	entered upon enrollment	no	no	yes	yes	SISC habitat & biodiversity metric
commodity category	crops, livestock, trees, crops ar	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
planting date of the cash/commodity crop	date	grower	entered at each planting	no	no	yes	yes	
harvest date of the cash/commodity crop	date	grower	entered at each planting	no	no	yes	yes	
planting date of the cover crop	date	grower	entered at each planting	no	no	yes	yes	
harvest date of the cover crop	date	grower	entered at each planting	no	no	yes	yes	
commodity type	alphanumeric	FSA commodity	each field, entered upon enrollment or upon data change	no	yes	yes	yes	

baseline yield (average yield of commodity in 3 year prior to enrollment)	production per acre	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
baseline yield unit	per acre (bushels, heads, poun	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
if other, specify	alphanumeric	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
baseline yield location	choose 1 (enrolled field, whole	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
if other, specify	alphanumeric	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
practice type (up to 7)	alphanumeric	data guide app	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
date practice completed	cumulative date	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
contract end date	date	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
MMRV assistance provided	binary	grower	each field x commodity x practice upon enrollment or data	no	yes	no	yes	
marketing assistance provided	binary	grower	each field x commodity x practice upon enrollment or data	no	yes	no	yes	
incentive per acre or head	binary	grower	each field x commodity x practice upon enrollment or data	no	yes	no	yes	
field commodity volume	numeric	grower	each field x commodity x practice upon enrollment or data	no	yes	no	yes	
volume unit	bushels, gallons, tons, pounds,	grower	each field x commodity x practice upon enrollment or data	no	yes	no	yes	
field commodity value	dollars	grower	each field x commodity x practice upon enrollment or data	no	yes	no	yes	
cost of implementation	dollars	grower	each field x commodity x practice upon enrollment or data	no	yes	no	yes	
cost unit	per acre, head, linear foot, bus	grower	each field x commodity x practice upon enrollment or data	no	yes	no	yes	
implementation cost coverage by project incentives	% total cost	grower	each field x commodity x practice upon enrollment or data	no	yes	no	yes	
field GHG monitoring	choose up to 3 (on farm inspec	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
if other, specify	alphanumeric		each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
field GHG reporting	choose up to 3 (mobile app, w	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
if other, specify	alphanumeric		each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
field GHG verification	choose up to 3 (third party auc	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
if other, specify	alphanumeric		each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
field GHG calculations	choose 1 (models, direct physi	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
field official GHG calculations	choose 1 (models, direct physi	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
field official GHG ER	metric tons	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	official estimate of total GHG reductions for field
field official carbon stock	metric tons	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	official estimate of total carbon sequestration for field
field official CO2 ER	metric tons	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	official estimate of total CO2 emissions reductions for field
field official CH4 ER	metric tons	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	official estimate of total CH4 emissions reductions for field
field official N2O ER	metric tons	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	official estimate of total N2O emissions reductions for field
field offsets produced	metric tons	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
field insets produced	metric tons	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
other field measurements (other than GHG benefit estimation)	binary	grower	each field x commodity x practice upon enrollment or data	no	yes	yes	yes	
GHG benefits- alternate model			each field x commodity x practice upon enrollment or data	yes	yes	yes	yes	used if GHG are modeled for the same field using multiple methods
Marketing Activities								
commodity type	alphanumeric	FS# commodity	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
marketing channel type	choose 1 (food processor, non	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
number of buyers per marketing channel	numeric	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
names of buyers	alphanumeric list	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
marketing channel geography	choose 1 (local, regional, natio	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
value sold	dollars per metric ton (D-500)	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
volume sold	numeric	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
volume sold unit	bushels, gallons, metric tons, s	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
price premium	dollars	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
price premium unit	per (bushels, gallons, metric to	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
price premium to producer	%	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
product differentiation method	up to 3 (label or badge on pack	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
if other, specify	alphanumeric	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
marketing method	up to 3 (label or badge on pack	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
if other, specify	alphanumeric	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
market channel identification method	up to 3 (in person lead generat	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
if other, specify	alphanumeric	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
traceability method	up to 3 (barcode, mass balance	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	
if other, specify	alphanumeric	IFPA	not cumulative, collected for each commodity with marketi	no	yes	no	yes	

Table 2. Soil Properties

Site identification number (ID) for sample taken at geographic location (x a	GPS coordinates	Grower, Soil sai	collected on each farm enrolled	no	no	yes	yes	
Depth of soil sampling	numeric	Grower, Soil sai	collected on each farm enrolled	no	no	yes	yes	
Soil pH	numeric, numbers from 0 to 14	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Organic matter	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
most recent organic matter test date	date	grower	collected on each farm enrolled	no	no	yes	yes	SISC soil organic matter metric
area of collected samples	alphanumeric	grower	collected on each farm enrolled	no	no	yes	yes	SISC soil organic matter metric
total organic content of sample	percentage	grower	collected on each farm enrolled	no	no	yes	yes	SISC soil organic matter metric
dominant soil series from sampled area	alphanumeric	USDA soil class	collected on each farm enrolled	no	no	yes	yes	SISC soil organic matter metric
soil texture from sampled area	alphanumeric	soil pyramid	collected on each farm enrolled	no	no	yes	yes	SISC soil organic matter metric
Modified Morgan extractable P	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
K	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Mg	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Fe	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Mn	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Zn	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Al	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Ca	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Cu	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
S	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
B	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Soil Texture	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Wet aggregate stability	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Active carbon	alphanumeric	Soil testing lab	collected on each farm enrolled	no	yes	yes	yes	To be transformed to demonstrate C sequestration, reduction in GHG emissions
Soil organic carbon	alphanumeric	Soil testing lab	collected on each farm enrolled	no	yes	yes	yes	To be transformed to demonstrate C sequestration, reduction in GHG emissions
Total carbon	alphanumeric	Soil testing lab	collected on each farm enrolled	no	yes	yes	yes	To be transformed to demonstrate C sequestration, reduction in GHG emissions
Total nitrogen	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	To be transformed to demonstrate C sequestration, reduction in GHG emissions
Soil protein	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	Soil Protein: is a measure of the fraction of the soil organic matter which contains much of the organically bound N. Microbial activity can mineralize this N and make it available for plant uptake.
Bulk density	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	Bulk density is essential to calculate soil C stocks (density) and soil C sequestration rates
Predicted Autoclave-Citrate Extractable (ACE) Protein Test	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
Surface penetration resistance	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	
sub-surface penetration resistance	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	Penetration resistance is related to bulk density/hardness
Soil respiration/ GHG emissions	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	Soil respiration: is a measure of the metabolic activity of the soil microbial community. Essential to understand GHG emissions from soil (CO2, CH4, N2O)
Available water capacity	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	AWC: reflects the quantity of water that a disturbed sample of soil can store for plant use
Dominant soil series	alphanumeric	Soil Testing lab		no	no	yes	yes	
hydrologic class	alphanumeric	Soil testing lab	collected on each farm enrolled	no	no	yes	yes	

Table 3. Environmental Conditions

Normal precipitation	long term sequences, daily dat	Gridded data from Climate Group, Oregon State University		no	no	yes	yes	
Normal temperature	long term sequences, daily dat	Gridded data from Climate Group, Oregon State University		no	no	yes	yes	
Normal vapor pressure deficit	long term sequences, daily dat	Gridded data from Climate Group, Oregon State University		no	no	yes	yes	
Daily precipitation	long term sequences, daily dat	Weather service		no	no	yes	yes	
Daily mean temperature	long term sequences, daily dat	Weather service		no	no	yes	yes	
Daily high temperature	long term sequences, daily dat	Weather service		no	no	yes	yes	
Daily low temperature	long term sequences, daily dat	Weather service		no	no	yes	yes	

Table 4. Practice Specific

Historic Management Type	choose one (pre-1980, CRP pre grower	collected on each farm enrolled	yes	no	yes	yes		
Future scenario management (changes to management practices)	choose one (crops, tillage even grower		yes	no	yes	yes		
Conservation practices adopted	alphanumeric description	Grower	yes	yes	yes	yes		
Digital high resolution soil image of soil surface (to characterize residue management) and extracted topsoil	image	Soil sampler	no	no	yes	yes		
Photographs of the field prior to the practice implementation	image	Grower	no	yes	yes	yes	To be associated with GPS coordinates of the site for USDA reporting AND used for AI/ML to develop practice recognition	
Photographs of the field with practices visible	image	Grower, Soil sampler	no	yes	yes	yes	To be associated with GPS coordinates of the site for USDA reporting AND used for AI/ML to develop practice recognition	
For practices involving applications, lbs applied	numeric, lbs	Grower	no	no	yes	yes		
For practices involving applications, area treated	numeric, acres	Grower	no	no	yes	yes		
Fertilizer applied?	binary (yes/no)	Grower	yes	no	yes	yes		
If fertilizer applied, N		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, P		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, K		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, Mg		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, Fe		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, Mn		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, Zn		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, Al		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, Ca		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, Cu		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, S		Fertilizer vendor	no	no	yes	yes		
If fertilizer applied, B		Fertilizer vendor	no	no	yes	yes		
fertilizer type		Fertilizer Vendor	yes	no	yes	yes		
fertilizer application date		Grower	yes	no	yes	yes		
fertilizer amount applied		Grower	yes	no	yes	yes		
fertilizer EEP		Grower	yes	no	yes	yes		
Manure/ compost applied	binary (yes/no)	grower	yes	no	yes	yes		
manure/ compost type	description	Fertilizer vendor	yes	no	yes	yes		
manure/ compost application date	date	Fertilizer vendor	yes	no	yes	yes		
manure/ compost amount applied	numeric	Fertilizer vendor	yes	no	yes	yes		
manure/ compost moisture %	numeric	Fertilizer vendor	yes	no	yes	yes		
manure/ compost total N	numeric	Fertilizer vendor	yes	no	yes	yes		
manure/ compost C/N ratio	numeric	Fertilizer vendor	yes	no	yes	yes		
Water, Timing		Grower	no	no	yes	yes		
Water, Depth		Grower	no	no	yes	yes		
Water, Method		Grower	no	no	yes	yes		
Water, Application Data		Grower	no	no	yes	yes		
irrigation (date applied)	date	Grower	yes	no	yes	yes		
irrigation (inches per application)	numeric	Grower	yes	no	yes	yes		
applied water volume (total for reporting year)	gallons	grower	no	no	yes	yes	SISC applied water metric	
Irrigation source	alphanumeric	grower	no	no	yes	yes	SISC applied water metric	
harvest event specifics	description	Grower	yes	no	yes	yes		
Pest Management Application Data		Grower	no	no	yes	yes		
PMA Product Detail (active, rate, etc.)		Grower	no	no	yes	yes		
liming material (if applicable)	alpha-numeric	Grower	yes	no		yes		
liming date	date	Grower	yes	no		yes		
lime amount applied	alpha-numeric	Grower	yes	no		yes		
Burning time (if applicable)	before or after harvest	Grower	yes	no		yes		
Tillage implementation pass	?	Grower	yes	no		yes		
Tillage dates	date	Grower	yes	no		yes		
Spectral data of soil samples, field-based (visible near-infrared spectroscopy)		Soil sampler	no	no	yes	yes	to calculate USDA requirements on sequestration	
Spectral data of soil samples, lab-based (visible near-infrared spectroscopy)		UF lab	no	no	yes	yes		
Spectral data of crop leaves, field based (visible near-infrared spectroscopy)		Field data collector	no	no	yes	yes		
Crop types (crop 1, crop 2, etc. in rotation)	alpha-numeric	grower/ field data collector	yes	no	yes	yes		
Crop yield (season)	alphanumeric	grower/ field data collector	yes	no	yes	yes		
Crop rotation (crop types in the crop rotation)	alphanumeric	grower/ field data collector	yes	no	yes	yes		
Crop intensity (how many crops in rotation)	alphanumeric	grower/ field data collector	no	no	yes	yes		
Cover crops (type)	drop down list: legume, short-t	grower/ field data collector	no	no	yes	yes		
Total biomass of the cover crop	numeric	grower/ field data collector	no	no	yes	yes		
Total biomass of the cash crop	numeric	grower/ field data collector	no	no	yes	yes		
Canopy density	numeric	grower/ field data collector	no	no	yes	yes		
Crop vigor	categorical rating (ordinal scale	grower/ field data collector	no	no	yes	yes		
Soil surface condition under crops (row crops)	categorical rating (ordinal scale	grower/ field data collector	no	no	yes	yes		
Percentage of bare soil under crops	alphanumeric	grower/ field data collector	no	no	yes	yes		
harvest event specifics	?	grower/ field data collector	yes	no	yes	yes		
grazing events	?	grower/ field data collector	yes	no	yes	yes		
Remote sensing	UF postdoc	Landsat and Sentinel imagery	no	no	yes	yes	Monitoring of vegetation health and stresses (Normalized Difference Vegetation Index, Enhanced Vegetation Index, Crop Water Stress Index, crop residue indices)	
Remote sensing	UF postdoc	Sentinel-5P and NASA's Orbiting Carbon Observatory, OCO-2 satellite	no	no	yes	yes	monitoring of GHG emissions, specifically CO2 emissions and carbon budgeting	
Above ground biomass			no	no	yes	yes	carbon stocks, national biomass and carbon data.	
CO2 (potentially NOx and CH4)	UF postdoc	remote sensing	no	no	yes	yes		
field land use (most common use in past 3 years)	choose 1 (cropland, forestland	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
field irrigated (most common type in past 3 yrs)	choose 1 (none, center pivot, c	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
field tillage (most common in past 3 yrs)	choose 1 (none, no till direct s	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
field any CSAF practice (past 3 yrs)	binary	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
practice type to be implemented	alphanumeric	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
practice standard (organization that developed CSAF practice)	choose 1 (NRCS, other)	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
planned practice implementation year	year	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
practice extent area	decimal	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
practice extent unit	choose 1 (acres, head of livest	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
practice past extent on farm	0%, <25%, 25-50%, 51-75%, >7	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
practice past extent on this field	yes, some, no, i don't know	grower	each field, entered upon enrollment or upon data change	no	yes	yes	yes	
Nitrogen Use								
nitrogen test method	choose from list (?)	grower		no	no	yes	yes	SISC nitrogen use metric
most recent lab test	date	grower		no	no	yes	yes	SISC nitrogen use metric- N from cover crop or legume
average NO3 value from test	decimal	grower		no	no	yes	yes	SISC nitrogen use metric- N from cover crop or legume
leguminous or cash crop	choose 1	grower		no	no	yes	yes	SISC nitrogen use metric- N from cover crop or legume

crop height at time of harvest (inches)	numeric	grower		no	no	yes	yes	SISC nitrogen use metric- N from cover crop or legume
percent of field planted with cover crop	decimal	grower		no	no	yes	yes	SISC nitrogen use metric- N from cover crop or legume
how much of cover crop was leguminous	percent	grower		no	no	yes	yes	SISC nitrogen use metric- N from cover crop or legume
stem description at harvest	choose from list (?)	grower		no	no	yes	yes	SISC nitrogen use metric- N from cover crop or legume
below ground biomass (pounds/acre)	decimal	grower		no	no	yes	yes	SISC nitrogen use metric- N from cover crop or legume
above ground biomass (pounds/acre)	decimal	grower		no	no	yes	yes	SISC nitrogen use metric- N from cover crop or legume
GHG Benefits- Measured								model for alternative calculations of GHG benefits: total GHG ebenfits estimated, total carbon stock estimated, total CO ₂ , CH ₄ , N ₂ O estimated
Farm ID	alphanumeric	grower	collected for each measurement method in each field	yes	yes	yes	yes	total CO ₂ /CH ₄ /N ₂ O reduction, total carbon stock change
tract ID	alphanumeric	grower	collected for each measurement method in each field	yes	yes	yes	yes	
field ID	alphanumeric	grower	collected for each measurement method in each field	yes	yes	yes	yes	
state of field	alphanumeric	grower	collected for each measurement method in each field	yes	yes	yes	yes	
county of field	alphanumeric	grower	collected for each measurement method in each field	yes	yes	yes	yes	
commodity type (up to 7)	alphanumeric	FSA commodity	collected for each measurement method in each field	yes	yes	yes	yes	
practice type (up to 7)	numeric	NRCS practice s	collected for each measurement method in each field	yes	yes	yes	yes	
GHG model	comet farm, comet planner, fle	grower	collected for each measurement method in each field	yes	yes	yes	yes	
model start date	date		collected for each measurement method in each field	yes	yes	yes	yes	
model end date	date		collected for each measurement method in each field	yes	yes	yes	yes	
GHG measurement method	soil samples, flux towers, soil sensors, vehicle r		collected for each measurement method in each field	yes	yes	yes	yes	
lab name	alphanumeric		collected for each measurement method in each field	yes	yes	yes	yes	
measurement start date	date	grower/ field d	collected for each measurement method in each field	yes	yes	yes	yes	
measurement end date	date	grower/ field d	collected for each measurement method in each field	yes	yes	yes	yes	
soil sample result	alphanumeric	grower/ field d	collected for each measurement method in each field	yes	yes	yes	yes	
soil sample result unit	percent, ppm, grams, grams pe	grower/ field d	collected for each measurement method in each field	yes	yes	yes	yes	
measurement type	organic matter, total organic ca	grower/ field d	collected for each measurement method in each field	yes	yes	yes	yes	
Energy/ GHG								
non-reported management area	numeric	grower		no	no	yes	yes	SISC energy metric (make optional)
non-reported management area name	alphanumeric	grower		no	no	yes	yes	SISC energy metric
volume of irrigation applied to non-reported area in reporting year	numeric	grower		no	no	yes	yes	SISC energy metric
horsepower of equipment	numeric	grower		no	no	yes	yes	SISC energy metric
name for equipment	alphanumeric	grower		no	no	yes	yes	SISC energy metric
is the equipment your own (vs contractor)	binary	grower		no	no	yes	yes	SISC energy metric
fuel type	alphanumeric	grower		no	no	yes	yes	SISC energy metric
machinery use	descriptive (choose from list)	grower		no	no	yes	yes	SISC energy metric
number of times machinery went across management area	numeric	grower		no	no	yes	yes	SISC energy metric
well depth (feet)	numeric	grower		no	no	yes	yes	SISC energy metric
irrigation power source	descriptive (choose from list)	grower		no	no	yes	yes	SISC energy metric
irrigation pump name	alphanumeric	grower		no	no	yes	yes	SISC energy metric
irrigation equipment PSI	numeric	grower		no	no	yes	yes	SISC energy metric
total volume irrigation water for selected crop in management area (gallons)	gallons	grower		no	no	yes	yes	SISC energy metric
amount of diesel fuel used by farm for repotting year	numeric	grower		no	no	yes	yes	SISC energy metric
amount of electricity use by farm in reporting year	kwh	grower		no	no	yes	yes	SISC energy metric
other fuels used on farm	binary	grower		no	no	yes	yes	SISC energy metric
other fuel type	descriptive (choose from list)	grower		no	no	yes	yes	SISC energy metric
other fuel amount used	gallons	grower		no	no	yes	yes	SISC energy metric
how much of on-farm energy usage is renewable	percentage	grower		no	no	yes	yes	SISC energy metric
eGrid provider	descriptive (choose from list)	grower		no	no	yes	yes	SISC energy metric
if selected yes for other equipment, how much annual electricity used	kwh	grower		no	no	yes	yes	SISC energy metric
other equipment name	alphanumeric	grower		no	no	yes	yes	SISC energy metric
do you want to use your own weighting factor	binary	grower		no	no	yes	yes	SISC energy metric
if yes, enter the percentage amount	alphanumeric	grower		no	no	yes	yes	SISC energy metric
if yes, enter the amount in gallons	alphanumeric	grower		no	no	yes	yes	SISC energy metric
Additional environmental benefits/ Ecosystem Services								
farm ID, tract ID, field ID, state, county		grower	collected for each field, not cumulative	no	yes	yes	yes	
environmental benefits measured	binary	project partner	collected for each field, not cumulative	no	yes	yes	yes	
reduction in nitrogen loss (if applicable)	amount, unit, purpose (produc	grower/ field d	collected for each field, not cumulative	no	yes	yes	yes	
reduction in phosphorus loss (if applicable)	amount, unit, purpose (produc	grower/ field d	collected for each field, not cumulative	no	yes	yes	yes	
other water quality (if applicable)	type, amount, unit, purpose (p	grower/ field d	collected for each field, not cumulative	no	yes	yes	yes	
water quantity (if applicable)	amount, unit, purpose (produc	grower/ field d	collected for each field, not cumulative	no	yes	yes	yes	
reduced erosion (if applicable)	amount, unit, purpose (produc	grower/ field d	collected for each field, not cumulative	no	yes	yes	yes	
reduced energy use (if applicable)	amount, unit, purpose (produc	grower/ field d	collected for each field, not cumulative	no	yes	yes	yes	
avoided land conversion (if applicable)	amount, unit, purpose (produc	grower/ field d	collected for each field, not cumulative	no	yes	yes	yes	
improved wildlife habitat (if applicable)	amount, unit, purpose (produc	grower/ field d	collected for each field, not cumulative	no	yes	yes	yes	
Supplemental Reporting								
farm ID, tract ID, field ID, state, county	alphanumeric	grower	collected for all below	no	yes	yes	yes	
species category	alphanumeric	grower	collected if alley cropping is chosen practice (CPS 311)	no	yes	yes	yes	
species density	# of trees planted per acre	grower	collected if alley cropping is chosen practice (CPS 311)	no	yes	yes	yes	
species category	alphanumeric	grower	collected if cover crop is chosen practice (CPS 340)	no	yes	yes	yes	
cover crop planned management	choose 1 (grazing, haying, terr	grower	collected if cover crop is chosen practice (CPS 340)	no	yes	yes	yes	
cover crop termination method	choose 1 (burning, herbicide a	grower	collected if cover crop is chosen practice (CPS 340)	no	yes	yes	yes	
surface disturbance	choose 1 (none, seed row only	grower	collected if tillage mgmt- no till is chosen practice (CPS 329)	no	yes	yes	yes	
surface disturbance	choose 1 (seed row/ ridge till	grower	collected if tillage mgmt- reduced till is chosen practice (CPS 329)	no	yes	yes	yes	
nutrient type	choose 1 (biosolids, commerci	grower	collected if nutrient management is chosen practice (CPS 350)	no	yes	yes	yes	
nutrient application method	choose 1 (banded, broadcast, i	grower	collected if nutrient management is chosen practice (CPS 350)	no	yes	yes	yes	
nutrient application method in previous year	choose 1 (banded, broadcast, i	grower	collected if nutrient management is chosen practice (CPS 350)	no	yes	yes	yes	
nutrient application timing	choose 1 (single pre-planting, s	grower	collected if nutrient management is chosen practice (CPS 350)	no	yes	yes	yes	
nutrient application timing in previous year	choose 1 (single pre-planting, s	grower	collected if nutrient management is chosen practice (CPS 350)	no	yes	yes	yes	
nutrient application rate	numeric	grower	collected if nutrient management is chosen practice (CPS 350)	no	yes	yes	yes	
nutrient application rate unit	alphanumeric	grower	collected if nutrient management is chosen practice (CPS 350)	no	yes	yes	yes	
nutrient application rate change compared to previous year	choose 1 (decrease, increase, r	grower	collected if nutrient management is chosen practice (CPS 350)	no	yes	yes	yes	
species category	choose 1 (flowering plants, for	grower	collected if grassed waterway is chosen practice (water man	no	yes	yes	yes	
strip width	numeric (feet)	grower	collected if filter strip is chosen practice (CPS 393)	no	yes	yes	yes	
species category	choose 1 (forbs,grasses, mix, s	grower	collected if filter strip is chosen practice (CPS 393)	no	yes	yes	yes	
species category	choose 1 (coniferous trees, de	grower	collected if riparian forest buffer is chosen practice (CPS 391)	no	yes	yes	yes	
species density (number of trees planted per acre)	numeric	grower	collected if riparian forest buffer is chosen practice (CPS 391)	no	yes	yes	yes	
mulch type	choose 1 (gravel, synthetic, nat	grower	collected if mulching is chosen practice (CPS 484)	no	yes	yes	yes	
mulch cover	% of field	grower	collected if mulching is chosen practice (CPS 484)	no	yes	yes	yes	