



CLIMATE
ACTION
RESERVE

Agriculture Sector Workshop

Franciscan A
1:00 – 3:00pm

Introductions – Reserve Staff



McKenzie Smith, Associate Director



Alison Nord, Senior Associate

AGENDA

- **Climate Action Reserve Introductions (5 mins)**
- **Project Developer Roundtable (60 mins)**
 - **Indigo Ag:** Ryan Pape, Sustainability MRV Manager
 - **Truterra:** Meredith Varie, Standards & Methodologies Manager, Dairy & Livestock
 - **Nutrien Ag Solutions:** Michael Nassry, Ecosystem Program Specialist
- **Biogeochemical Model Overview (30mins)**
 - **Viresco Solutions:** Brian McConkey, Chief Scientist
- **Verification Perspective (30mins)**
 - **Aster Global Environmental Solutions:** Matthew Campbell, Environmental Scientist/Field Forester
- **Next steps (5 mins)**



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Climate Action Reserve

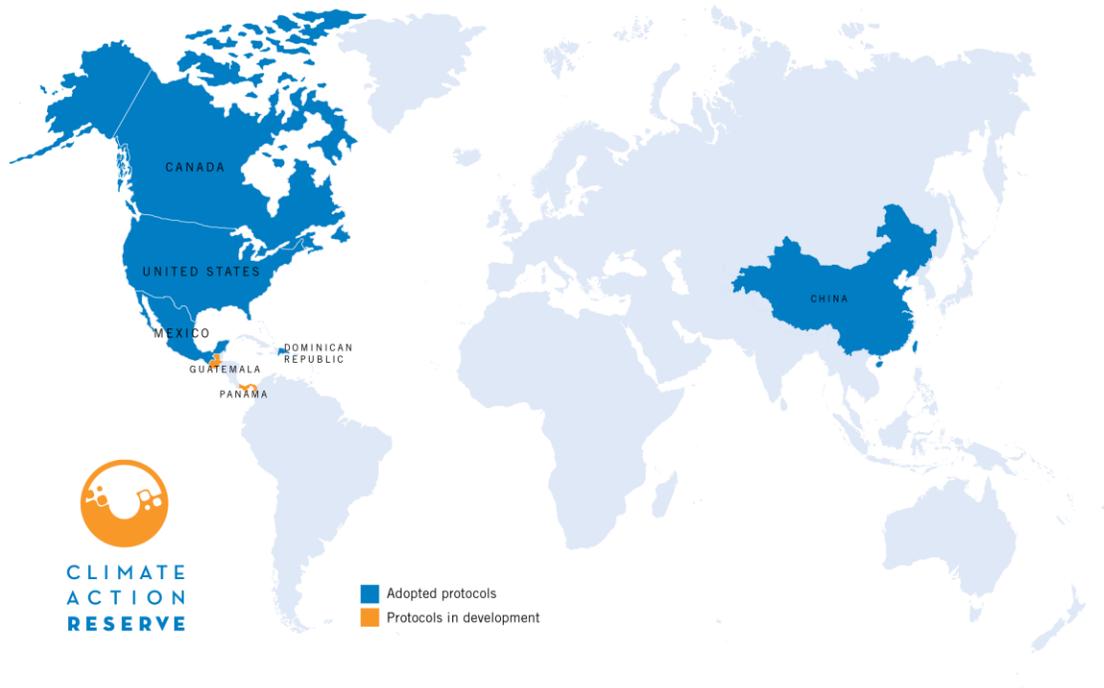


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- Nonprofit, founded 2001
- Voluntary & compliance
- >500 Projects
- >200M Credits Issued

- Agriculture Protocols

- >500,000 Credits Issued
- Soil Enrichment Protocol
- Nitrogen Management Protocol
- Grassland Protocols
- Rice Protocol



Purpose: Agriculture Sector Workshop

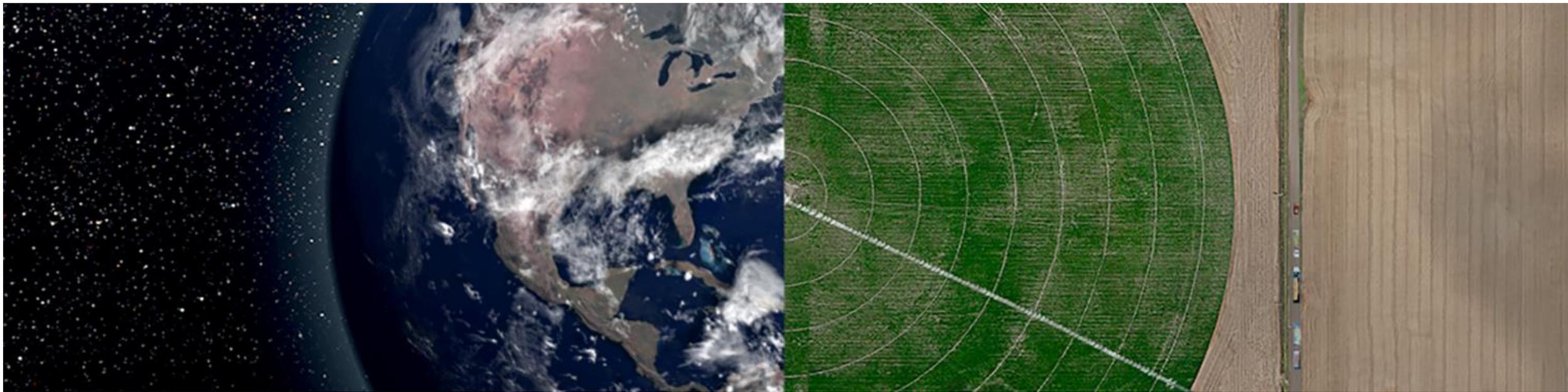
- Discuss potential of agriculture sector to play a critical role in our fight against climate change
- Learn about technical and administrative challenges from multiple perspectives including project developers and verification bodies
- Gain an understanding of the biogeochemical models available, how these models are being used to support agriculture projects, and what current opportunities and limitations exist
- Receive an update from the Reserve on current project uptake and next steps for protocol updates



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PROJECT DEVELOPER ROUNDTABLE

(15 Min Presentations & 5 min Q&As)



Project Development Under the Soil Enrichment Protocol

Experience & lessons learned after three successful verifications

North American Carbon World, 2024 – San Francisco, CA



MARCH 2024

FOUNDED: 2013

PLATFORM

DIGITAL PRODUCTS

SUSTAINABILITY SOLUTIONS

Crop Merchandising
Sustainable Crops

Carbon Credits

BIOLOGICAL PRODUCTS

BIOLOGICAL SOLUTIONS

Microbial Seed Coatings

DIFFERENTIATED AND PATENTED SCIENCE, TECHNOLOGY AND DATA

AG CARBON EXPERTISE

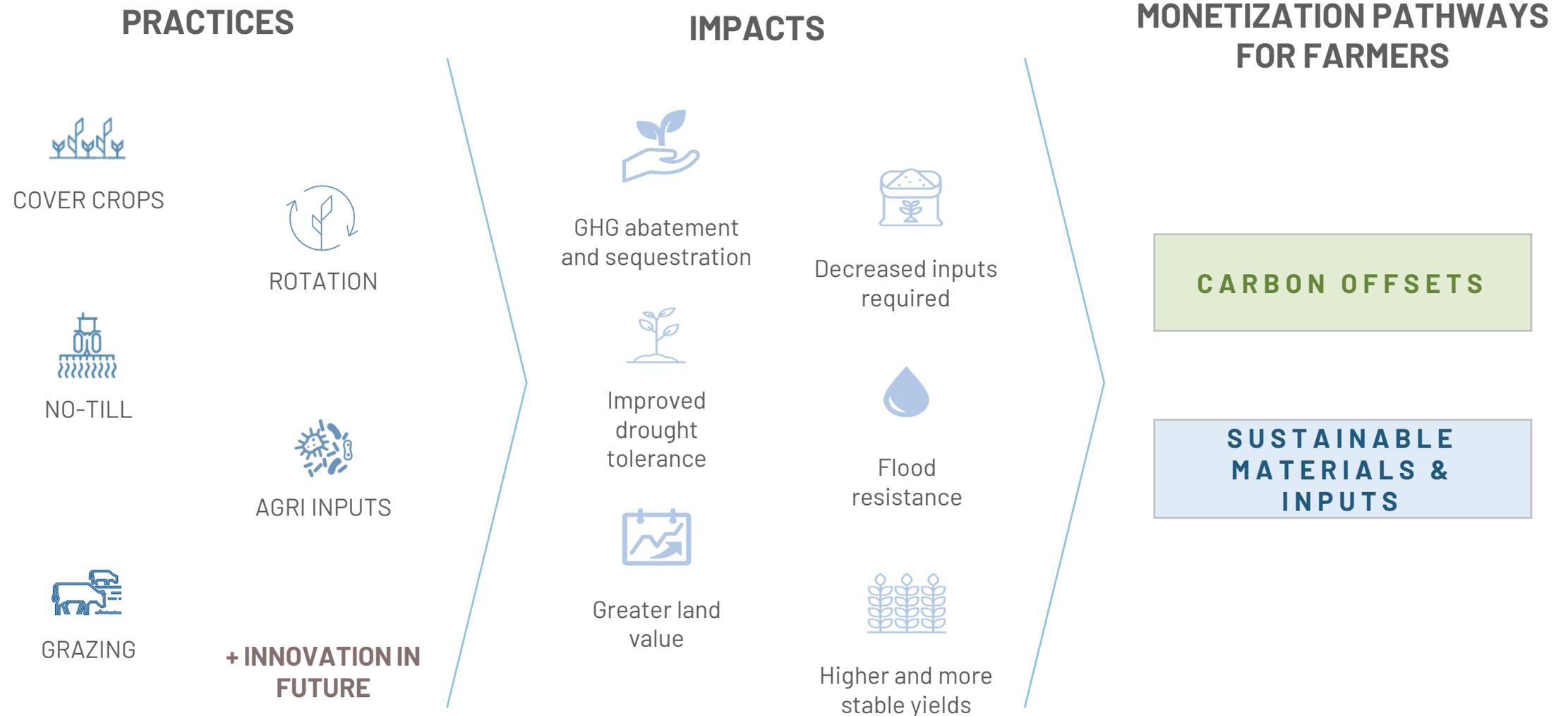
METHODOLOGIES

Verra VCS VM0042 + VMD0053 – AUTHORED
CAR Soil Enrichment Protocol v1.0 + 2.0 – working group

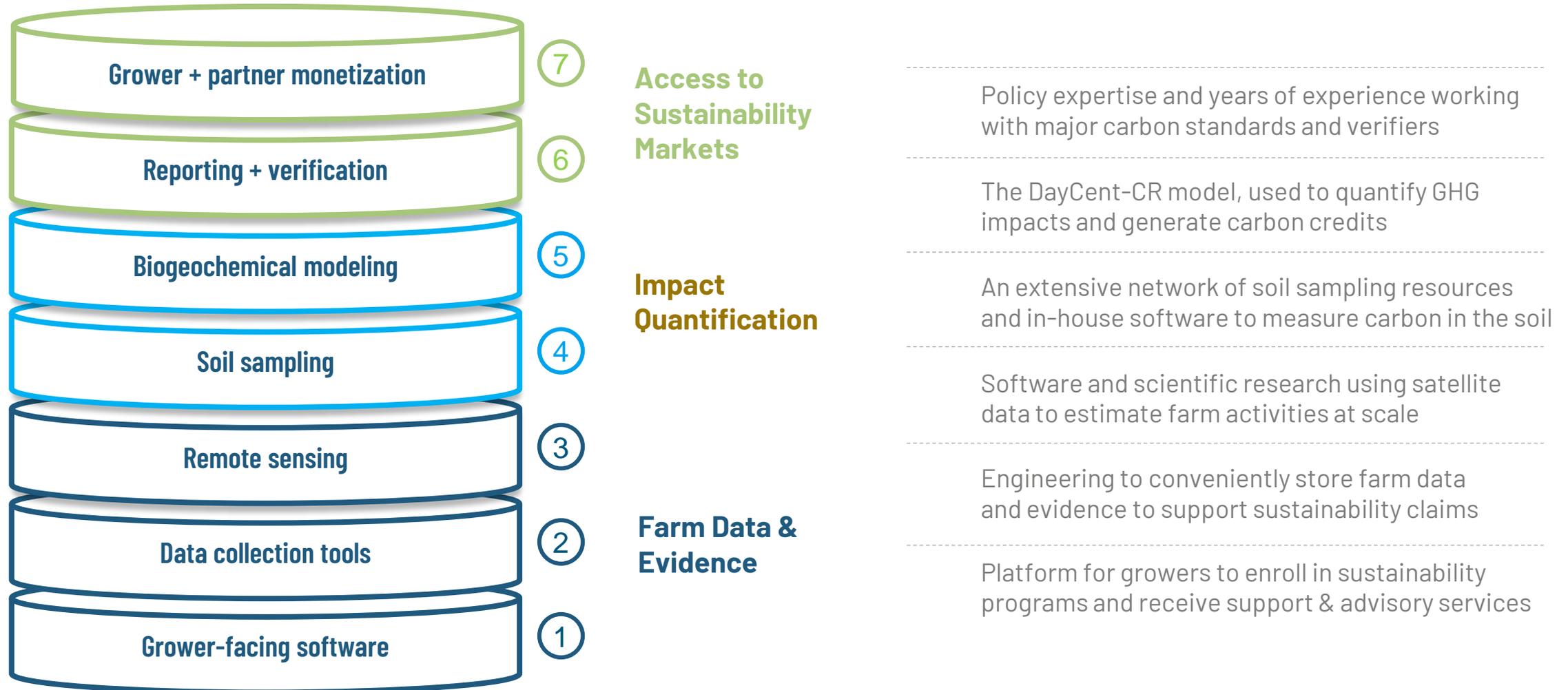
POLICY ENGAGEMENT

ISCIA Co-Founders + Board of Directors
EU Carbon Removals Expert Group
IC-VCM Agriculture Category Assessment MSWG
GHGP Land Sector & Removals TWG
Verra Scope 3 Working Group
VCMI Stakeholder Forum

We can monetize sustainable agriculture through two mechanisms



Indigo has built a set of modular MRV capabilities critical to operating and marketing agricultural sustainability programs



Overview: Indigo Ag US Project No. 1

CAR1459

History of Carbon by Indigo

- 2018** – Begin engaging farmers around GHG reductions; acquired Tellus Labs
- 2019** – Launch of Carbon by Indigo; begin engaging with CAR and Verra; submit concept note for VM0042
- 2020** – **1 million acres enrolled; adoption of CAR SEP v1.0, VM0042 v1.0, and VMD0053 v1.0; US project listed with CAR; first buyer contracts signed**
- 2021** – Start 1st verification of CAR1459; acquisition of Soil Metrics
- 2022** – **1st credit issuance**; begin 2nd verification; EU project listed with VCS
- 2023** – **2nd credit issuance**; begin 3rd verification
- 2024** – **3rd credit issuance**; preparing for 4th verification...

Program totals:



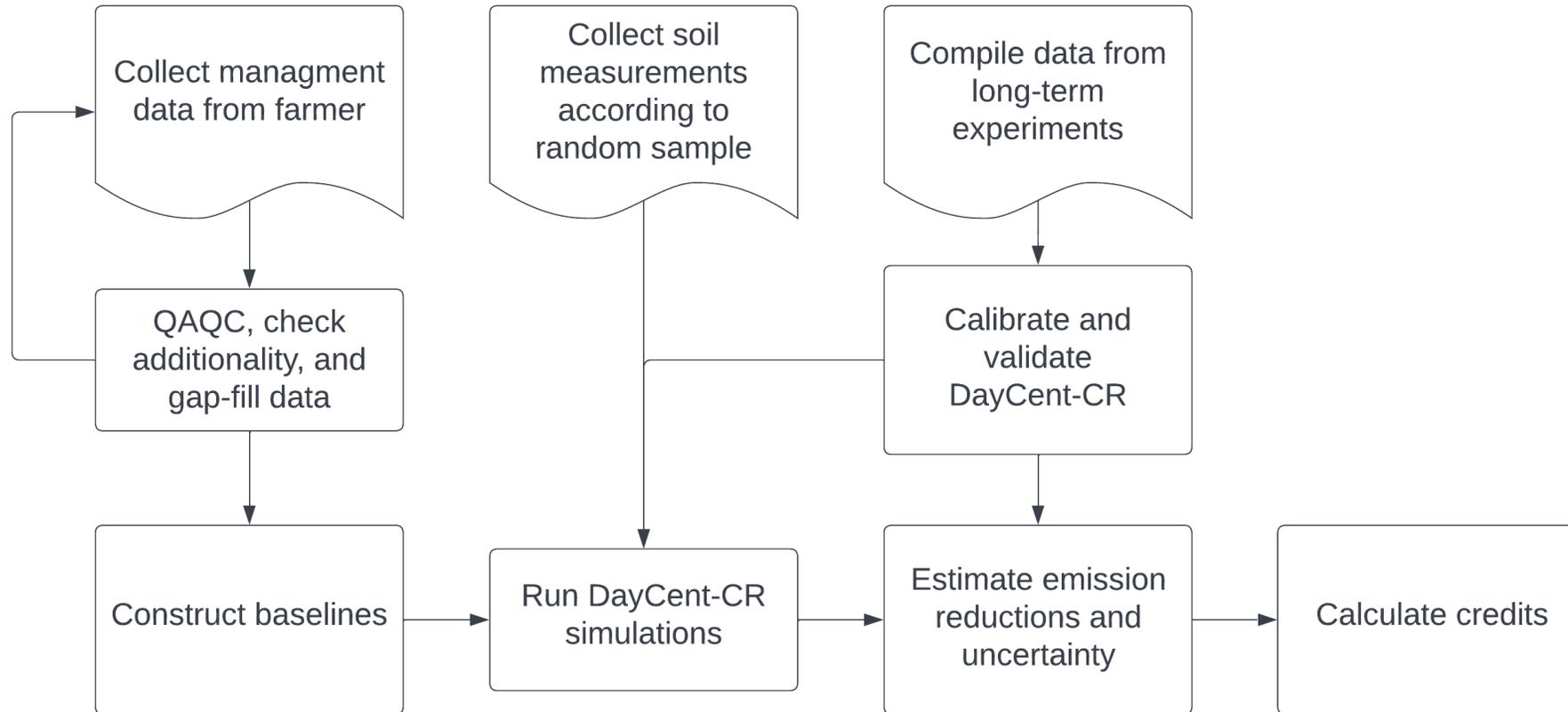
7+ million acres enrolled



\$12+ million paid to farmers¹

	CRTs	Acres	Fields	Farmers
RP1	22,225	100,371	1,184	175
RP2	111,389	423,740	5,083	427
RP3	163,048	1,289,360	15,766	972
	296,662			

The credit generation pipeline

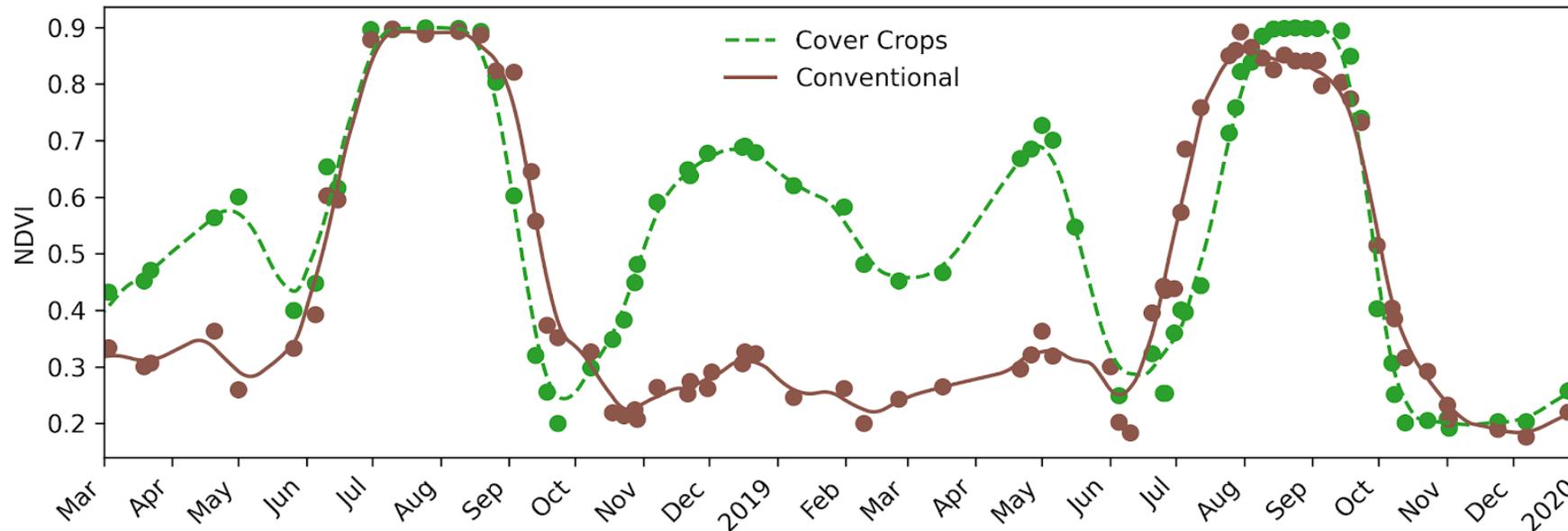
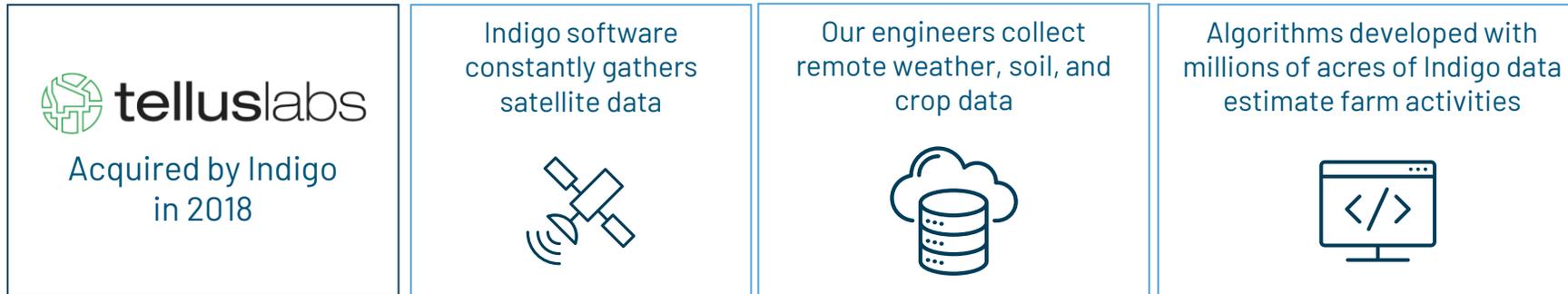


Not shown:

- Using farmer data to estimate N₂O and CH₄ emission reductions, and CO₂ emission reductions from fossil fuels
- Leakage deduction and buffer pool contributions

Indigo's proprietary remote sensing technology enables large-scale farm data collection without setting foot on the farm

How it works



Indigo's proprietary algorithms

-  Planted crop type
-  Planting/harvest dates
-  Irrigation status
-  Cover crop presence
-  Tillage status
-  Yield estimate
-  Field boundary mapping

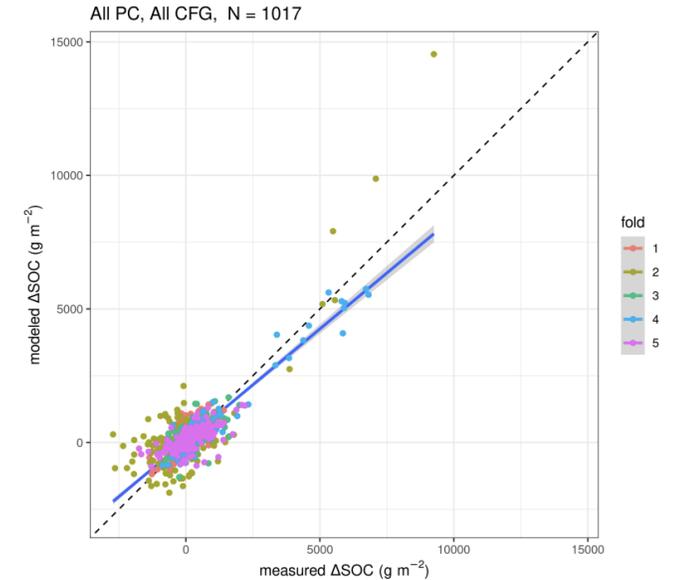
We already have 2 approved model validations for DayCent-CR

Models Validated for SEP

Model Name	Model Developer	SEP Model Requirements and Guidance Version	Model Reviewer	Project-Specific Validation or Generalized Validation	Link to Model Validation Report	Link to Model Validation 3rd Party Review
DayCent-CR version 1.0	Soil Metrics, LLC & Indigo Ag	Version 1.0	Brian McConkey, PhD, Viresco Solutions and Dr. Michael Dietze, Boston University Earth & Environment	Project-Specific	Validation Report for DayCent-CR version 1.0	McConkey Review, Dietze Review
DayCent-CR version 1.0.2	Indigo Ag	Version 1.1a	Dr. Michael Dietze, Boston University Earth & Environment	Project-Specific	Validation Report for DayCent-CR version 1.0.2	Dietze Review

VALIDATION CRITERIA:

- Must be met for each **practice change (PC)** by **crop function group (CFG)** category
- Experimental data must be **representative** of land in the project



Validation Report for DayCent-CR version 1.0

Soil Metrics, LLC
Indigo Ag

Reviewed by Brian McConkey, Viresco Solutions & Michael Dietze, Boston University

First submission: February 12, 2021
Revised to address reviewer comments: March 22, 2021; July 13, 2021; September 21, 2021; October 29, 2021; November 3, 2021

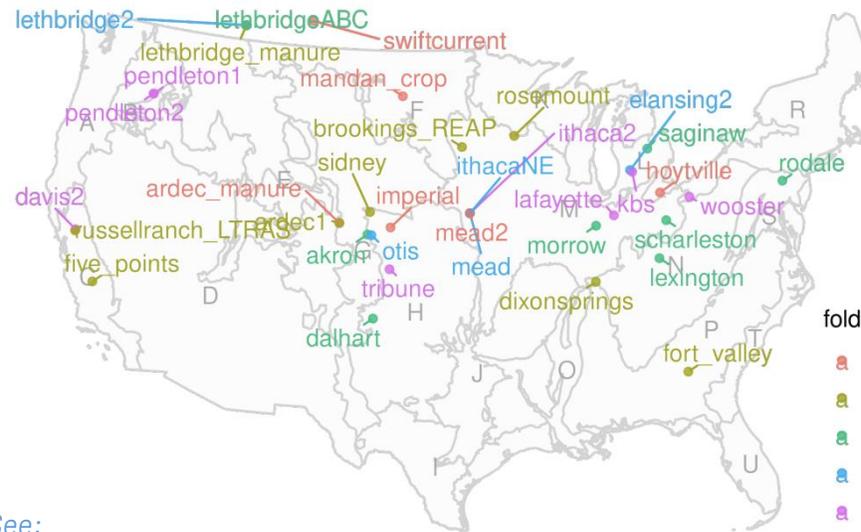
Contents

- Contents
- Report type
- SEP version
- SEP Model Reqns
- Model version
- Version confirmat
- Introduction
- Responsible parties
- Model Calibration
- Description of Mod
- Model setup
- Documentation of
- Justification for upl
- Project Domain
- Practice Categories
- Crop Functional Gr
- Land resource rega
- Soil
- Emissions Sources

Validation Report DayCent-CR Version 1.0.2
Indigo Ag



Reviewed by:	Michael Dietze, Boston University
First submission:	April 26, 2021
Revised to address reviewer comments:	May 19, 2021 June 9, 2021 June 16, 2021
Model requirements version:	Requirements and Guidance for Model Calibration, Validation, Uncertainty, and Verification For Soil Enrichment Projects, Version 1.1a
Prepared By:	Indigo Ag
Contact:	500 Butlerfield Ave. Boston, MA 02129 +1 (617) 528-0240

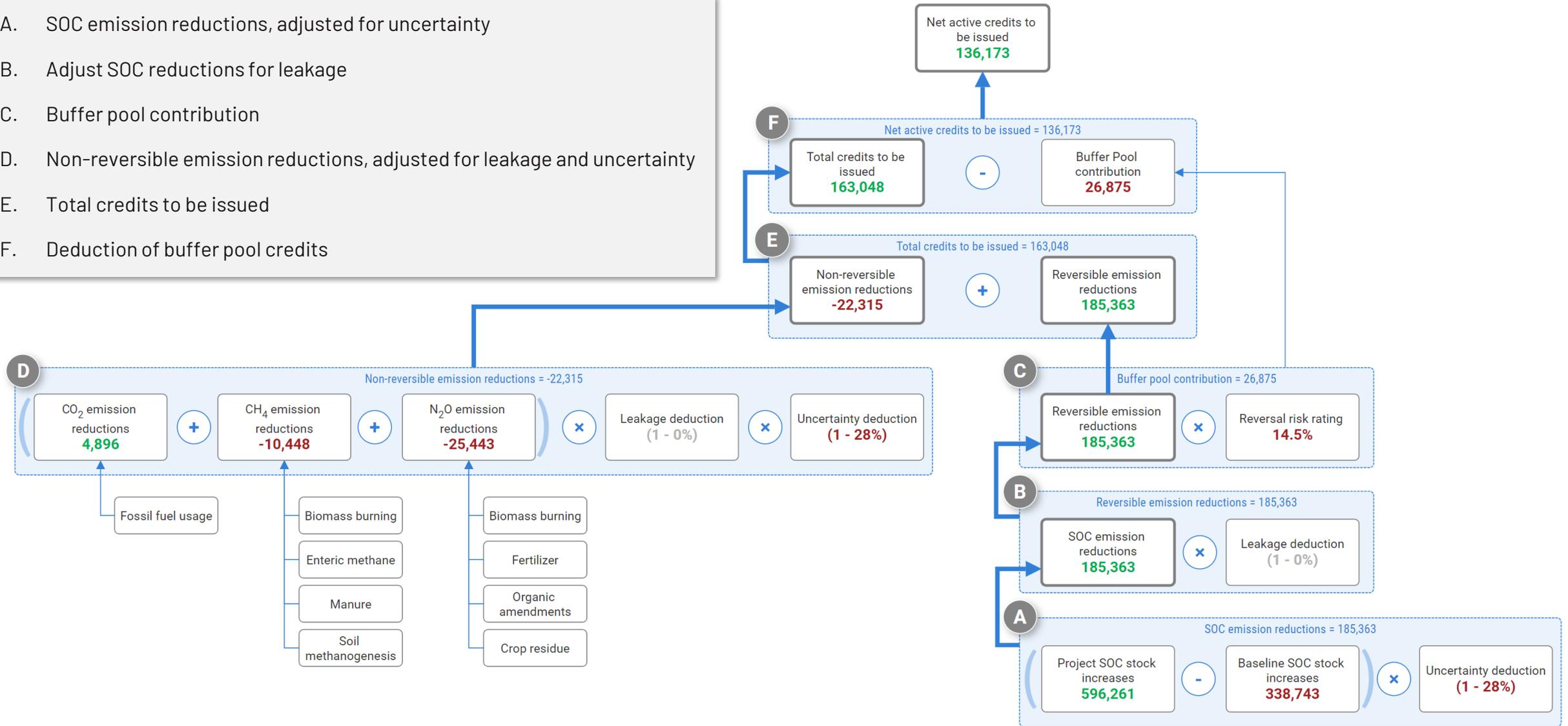


See:

- Requirements and Guidance for Model Calibration, Validation, Uncertainty, and Verification for Soil Enrichment Projects, v1.1a
- Validation Report for DayCent-CR version 1.0.2

Quantification of CAR1459: 3rd reporting period

- A. SOC emission reductions, adjusted for uncertainty
- B. Adjust SOC reductions for leakage
- C. Buffer pool contribution
- D. Non-reversible emission reductions, adjusted for leakage and uncertainty
- E. Total credits to be issued
- F. Deduction of buffer pool credits



Suggested updates for SEP v2.0

Cumulative accounting	<ul style="list-style-type: none">• Calculate each RP starting at the field start date, then subtract prior CRTs issued• Reduces uncertainty while also accounting for both improvements and errors over time
Timing of new field additions	<ul style="list-style-type: none">• Use the signing of the carbon contract to satisfy the “submittal deadline” for new fields
Reversal accounting	<ul style="list-style-type: none">• Distinguish between “performance-based” and “event-based” reversals and provide workable guidance for each
Expanded options	<ul style="list-style-type: none">• Guidance for measurement-only SOC quantification• Guidance for SOC analysis other than dry combustion (e.g., spectroscopy)
Data hierarchy	<ul style="list-style-type: none">• Specific guidance for machine and RS data sources• Guidance for use of extrapolation of data from other fields and when this is appropriate vs gap-filling
Remeasurement guidance	<ul style="list-style-type: none">• Replace vague “true-up” language with a requirement for an evaluation of model performance using remeasurement data
Permanence monitoring	<ul style="list-style-type: none">• Guidance on using RS for monitoring permanence of fields that exit• Clarity on reporting expectations

Thank you

Contact



Max DuBuisson

Head of Sustainability Policy & Engagement
mdubuisson@indigoag.com



Ryan Pape

Sustainability MRV Manager
rpape@indigoag.com

More information



[Indigoag.com](https://indigoag.com)

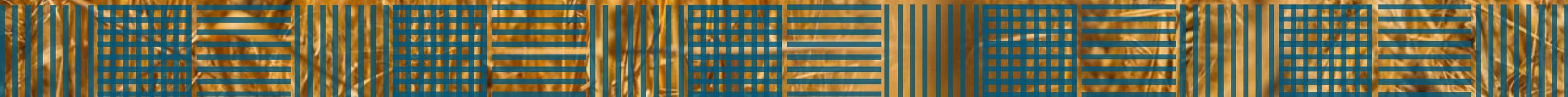


*Carbon-Pulse commentary
from Max DuBuisson*



Truterra Carbon Program

Meredith Varie, Carbon Standards and Methodologies Manager



LAND LAKES INC.

So Much More Than Butter

Fortune 200 company

\$16 billion farmer- and ag retailer-owned cooperative

Spans the agricultural ecosystem—from agricultural production to consumer foods



LAND LAKES
DAIRY FOODS

Largest dairy ingredient supplier to Mars, Nestle, Campbell's and others

100
year legacy of innovation



WINFIELD UNITED
CROP INPUTS AND INSIGHTS

Agricultural products, data, technology, tools and services

50%
of acres in the US



PURINA
ANIMAL NUTRITION

Solutions that optimize performance and well-being

#1
livestock feed in the U.S.



TRUTERRA
SUSTAINABILITY

Climate-smart ag services and carbon programs

\$4M
to farmers in 2022

Truterra is the farmer-focused sustainability business of Land O'Lakes, offering climate services and nature-based carbon reductions & removals.

Vested in Climate Action

“Agriculture has tremendous potential to drive high-impact solutions that help preserve the health of the planet. With our Truterra business, we’re not only improving sustainable production; we’re using our leadership position to help other companies meet their goals.”

Beth Ford

President and CEO, Land O’Lakes, Inc.
Board Member, PACCAR, Business Roundtable



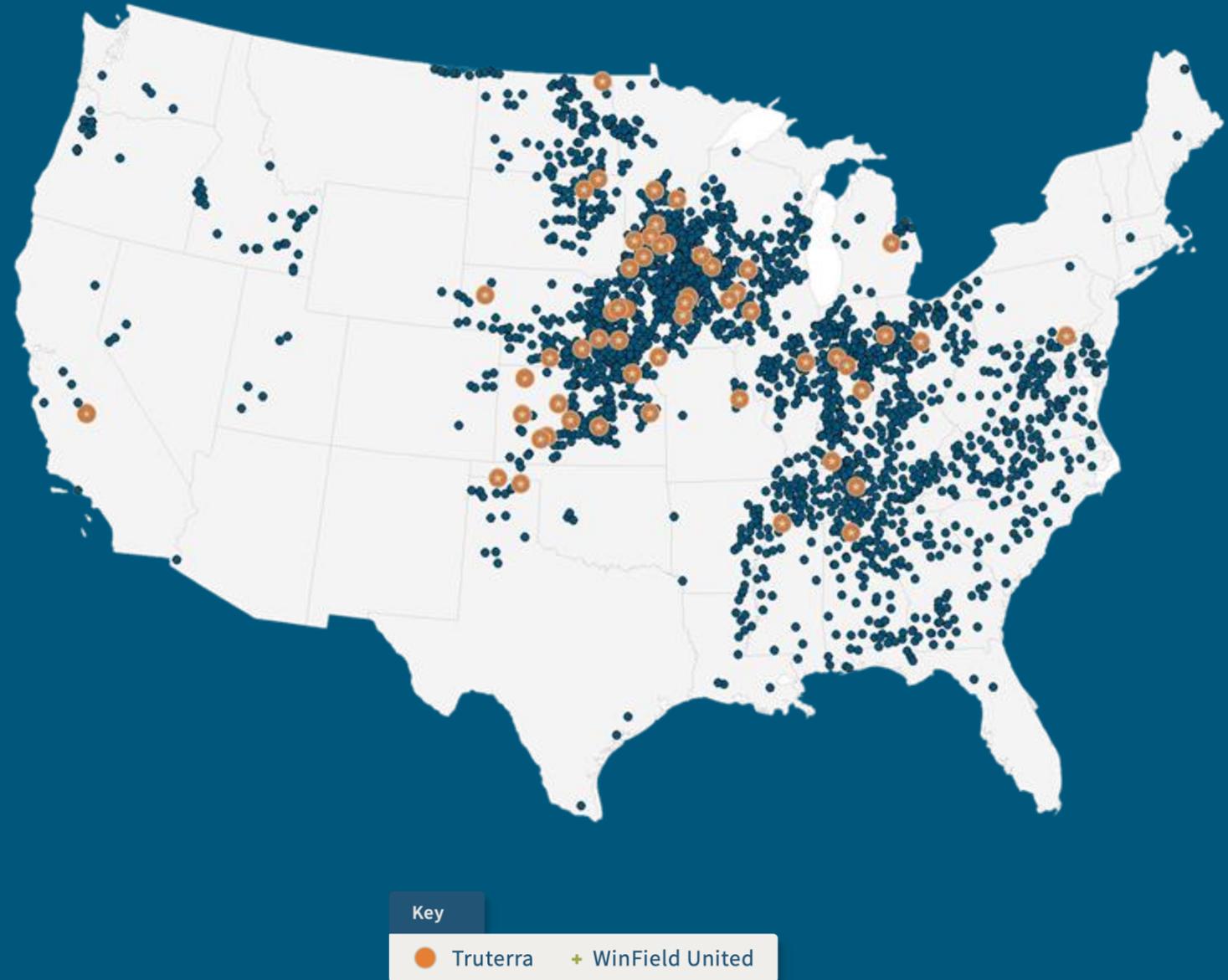
We help food, feed, fuel and fiber companies achieve their sustainability goals...



... as we help farmers protect and improve their soil health.

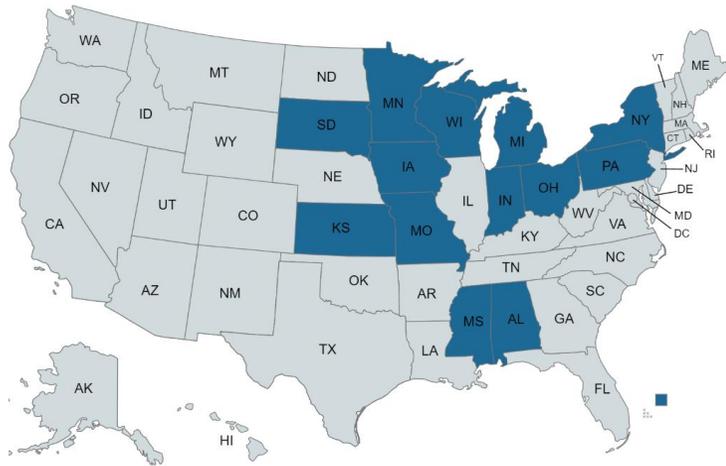
Truterra Offerings:

- **Nature-based carbon reductions and removals** *available as offsets, scope 3 assets, and emission factors*
- **Soil health projects** *to create and scale regenerative impact in the field*
- **Dairy Farm Footprint Services** *to help producers and processors understand their emissions *coming soon*
- **Dairy-focused carbon reduction & removal programs** *for manure, enteric, and soil interventions *coming soon*



Truterra Carbon Program (CAR1673)

Listed under Soil Enrichment Protocol v1.1; undergoing validation & verification



Geography



Crops

Cover Crops
Reduced Till
No Till

Practices

System Approach for Land Use Sustainability (SALUS)

Modeling

Opportunities & Challenges with Scaling

Opportunities

- Multiple practice change options in the protocol enable us to meet farmers where they are at in their journey
- New technologies that can help with monitoring project activities, data collection and soil sampling
- Payment/credit stacking, public-private partnerships

Challenges

- Diversity and agility of ag production systems – different from forestry or other homogenous project types
- Aligning cropping seasons/crop cycles with reporting periods
- Additionality and common practice assessment – the “tipping point” theory of change doesn’t match reality on the ground



Questions?

Meredith Varie

mvarie@landolakes.com
truterraag.com





Sustainable Nitrogen Outcomes

Local Solutions with Global Impact

4/17/2024

Nutrien Sustainability



Largest ag retailer in the world



Fertilizer production



Specialty products that target nitrogen use efficiency



Carbon Programs – Focused on field-level impacts



WHERE SUSTAINABILITY MEETS OPPORTUNITY.

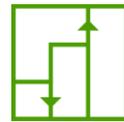
FARMSMART is the core of Nutrien Ag Solutions' sustainable agriculture offerings.
We are leading the field with growers to record positive environmental impacts while identifying and embracing new revenue streams.



Practices

LEVERAGE PRACTICES AND PRODUCTS

Identify current practices and discover new opportunities to evolve sustainability for growers.



Proof

MEASURE AND RECORD DATA

Data tells the story of current and past sustainable farming practices.



Profit

GET REWARDED FOR YOUR EFFORTS

Growers need to be profitable in order to be sustainable.



Sustainable Nitrogen Outcomes



Practices

LEVERAGE PRACTICES AND PRODUCTS

Boots on the Ground

Local crop consultants and agronomists collaborate with growers to build plans that meet program requirements and farm needs

Loveland Products

Nutrient Use Efficiency Products, slow controlled release (SCR) fertilizer or Nitrification Inhibitor

Protocol Framework

Program requirements and eligibility follow guidelines detailed in CAR NMPP



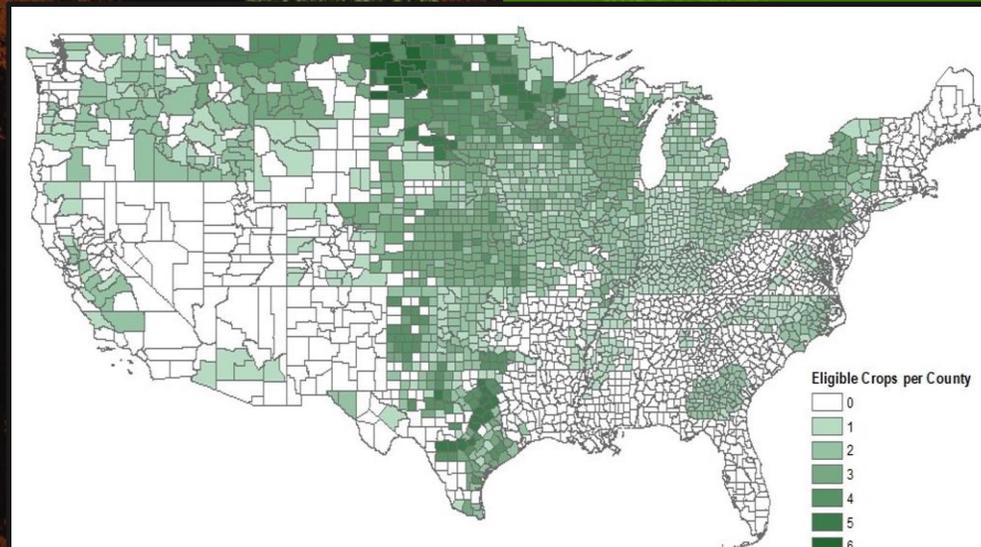
Program Requirements

Minimum 5% Reduction in Synthetic Nitrogen Fertilizer Application Rate

1 Year Grower Agreement

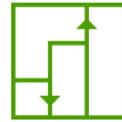
Eligible Crops and Geographies

Data uploaded into Agrible platform





Sustainable Nitrogen Outcomes



Proof

MEASURE AND RECORD DATA

Digital Data Transfer

Agrible data platform with external connections

Farm Logs

Data entered directly into Agrible

External Review

3rd party review of program, data auditing, grower interviews

Agribile



Data Management Platform

- **Grower and crop consultant can collaborate in the same platform**
- **Connect to other platforms to bring in data and field boundaries**
- **Connect with outside platforms to calculate impacts**
- **Growers own their data and decide which campaign to engage**



Establishing Baselines



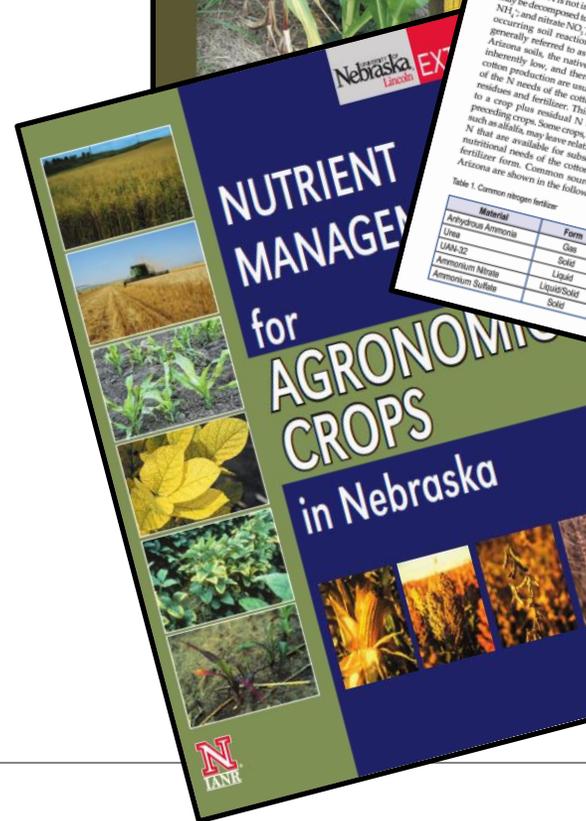
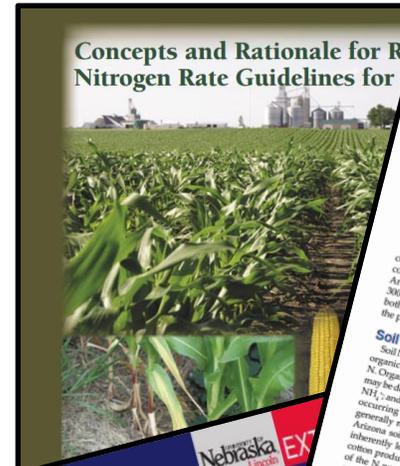
CAR Default Values Provided by Eligibility Tool



Land Grant University Recommendations



Farm Level Data



FERTILIZERGUIDE
FG 83
Revised April 2007
5/07

Winter Wheat in Continuous Cropping Systems

(Intermediate precipitation zone)

D.J. Wysocki, D.A. Henrick, L.K. Luecke, J.M. Hart, S.E. Petrie, and M.K. Corp

Recommendations in this fertilizer guide apply to winter wheat grown after a winter or spring cereal, peas, lentils, or garbanzo beans, canola or mustard, or sunflower or safflower. This guide is one of a set of publications that address the nutritional requirements of nonirrigated cereal crops in north-central and eastern Oregon (Table 1).

Recommendations for nitrogen, phosphorus, potassium, sulfur, chloride, and zinc are covered in this guide. Soils in the region supply sufficient amounts of other nutrients for optimum production of high-quality grain.

Nitrogen

To calculate the nitrogen (N) application rate, determine crop demand and adjust for soil test nitrogen and previous crop history. Evaluate application rates by reviewing the protein content of harvested grain. A detailed explanation is provided on pages 2-5.

Material	Form
Anhydrous Ammonia	Gas
Urea	Granule
UAN-32	Liquid
Ammonium Nitrate	Liquid/Solid
Ammonium Sulfate	Solid

Table 1. -- Fertilizer guides for nonirrigated cereal production in low, intermediate, and high precipitation zones of Oregon.

Publication #	Title	Precipitation zone
FG 80	Winter Wheat in Summer-Fallow Systems	Low
FG 81	Winter Wheat and Spring Grains in Continuous Cropping Systems	Low
FG 82	Winter Wheat in Summer-Fallow Systems	Intermediate
FG 83	Winter Wheat in Continuous Cropping Systems	Intermediate
FG 84	Winter Wheat in Continuous Cropping Systems	High

*This set of publications replaces FG 54, winter wheat, non-irrigated, Columbia Plateau. Precipitation zones are based on average annual precipitation and are defined as follows: Low = less than 12 inches; Intermediate = 12 to 18 inches; High = more than 18 inches.

D.J. Wysocki, Extension soil scientist; D.A. Henrick and L.K. Luecke, area Extension agronomists; J.M. Hart, Extension soil scientist; S.E. Petrie, superintendent, Columbia Basin Agricultural Research and Extension Center; and M.K. Corp, area Extension agronomist, all of Oregon State University.

Oregon State University | Extension Service



Sustainable Nitrogen Outcomes



Profit

Payments based on data
commitment and performance

Base Payment

Payment for data
commitment and application
of planned set of practices

Product Incentive

Additional per acre payments
for applying sustainable
products from Loveland

Emission Reduction

Additional payments if
emission reductions exceed
minimum threshold value



Grower Benefits



Minimum \$2 / acre



\$35 / ton GHG emission reductions



CORN

AVG.

\$4.89

PER ACRE

- **Minimum 5% reduction** of applied nitrogen with Nitrain Bullet™
- Long-term no-till (more than 10 years)

AVG.

\$4.47

PER ACRE

- **Minimum 5% reduction** of applied nitrogen with Nitrain Bullet™
- Conventional tillage



WINTER WHEAT

AVG.

\$2.40

PER ACRE

- **Minimum 5% reduction** of applied nitrogen with Nitrain Bullet™
- Long-term no-till (more than 10 years)



Challenges

- Weather impacts on yield
- Small scale variability
- Outdated extension and university guidelines
- Matching downstream outcomes and methodology to data collection and field level activities

Sustainability Campaigns: Looking Forward

2023 Crop Year Sustainable Nitrogen Outcomes



400,000 acres committed

154 Growers

21 States



Canada now covered under Agrible data platform



2024 All Programs:

2 million acres enrolled across United States, Canada, and Latin America



FARMSMART[®]



Sally Flis

Director, Sustainability Program Design and Outcome Management



AMAZON MUSIC



APPLE PODCASTS



SPOTIFY



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BIOGEOCHEMICAL MODEL OVERVIEW



Biogeochemical models for the Soil Enrichment Protocol

Brian McConkey

Chief Scientist

Viresco Solutions

Outline

- Biogeochemical models necessary for quantification of SOC change
- What has been the experience with validation?



Soil Enrichment

Protocol | Version 1.1 | May 31, 2022



TWO GUIDING DOCUMENTS



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**Requirements and Guidance for
Model Calibration, Validation,
Uncertainty, and Verification**
For Soil Enrichment Projects

Version 1.1a
April 2022

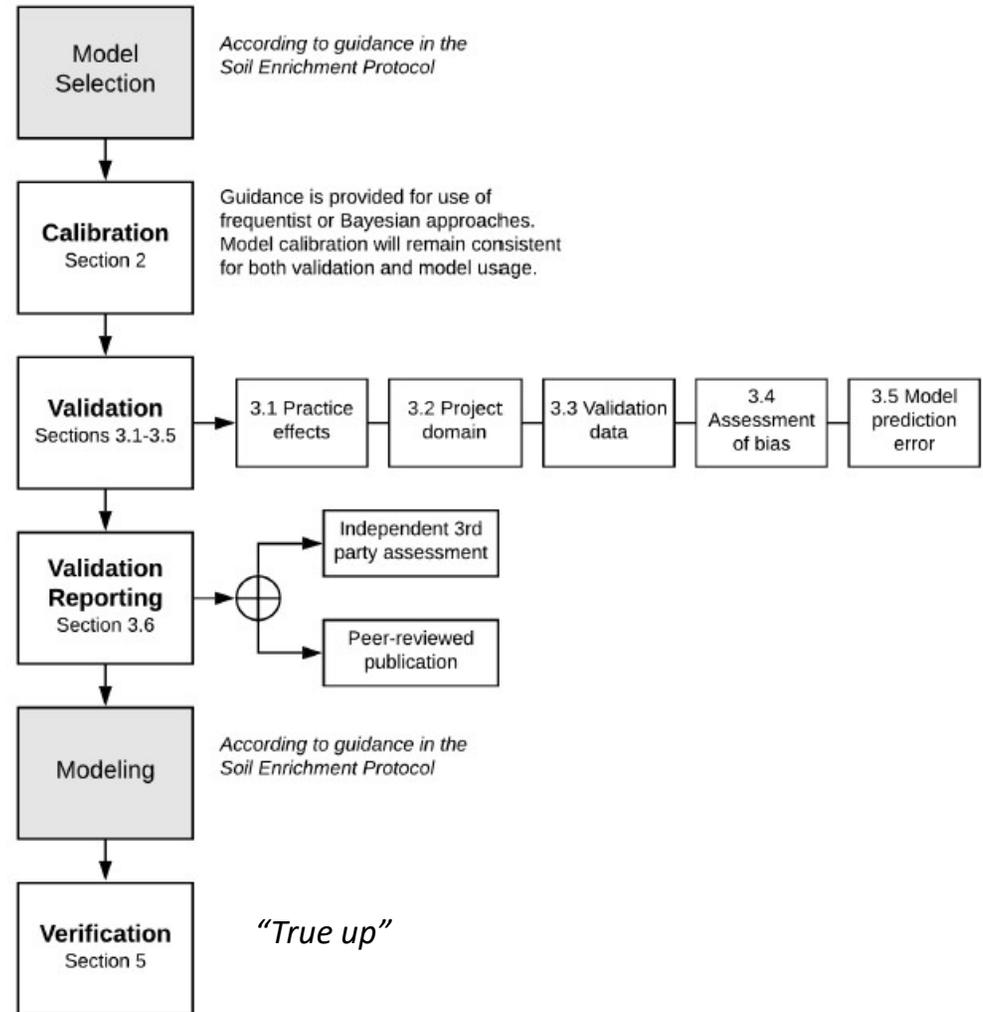
“Validation Guidance”





Requirements and Guidance for Model Calibration, Validation, Uncertainty, and Verification For Soil Enrichment Projects

Version 1.1a
April 2022



Experience as 3rd party reviewer of model validation reports

- Three validation reports of three difference models: DayCent, DNDC, and *ecosys*
- Calibration is limited as most parameters are considered stable for mature models
 - Two model validation reports did no calibration
- K-fold cross-validation was used when there was calibration
- The Validation Guidance was optimistic regarding finding sufficient validation data for each Crop Functional Group (CFG) by Practice Change (PC) by Emission Source (ES) for a large project involving many Land Resource Regions (LRR)
 - The implicit assumption that there is an interaction between CFG and PC so a more pooled analysis is not as discriminating
 - There is no compelling evidence that there is an important interaction requiring this granular validation



Holistic Validation

- Validation data available have required several variance requests to do the validation over the whole validation domain by ES to have sufficient coverage of LRR
 - In my reviews, I also require having the bias and fit between model and measured be presented for by CFG and PC for each ES.
 - This ensures weak model performance for any CFG and PC is presented
 - (Weak model performance by CFG and PC has not been an issue)
- Organic amendment, water management, and herbaceous perennial vegetation have especially limited validation data availability
 - This issue for organic amendments is recognized in the Validation Guidance and allows for pooling across annual crops and across perennial crops.
 - Validation data availability is as issue for both SOC and N₂O
 - I require at least two studies for any CFG or PC and that is not necessarily easy for the validator to obtain



Validation Data

- All model evaluation reports have used conventional replicated field experiments with a practice change treatment compared with a control treatment
 - The validation and the model prediction error is for the difference between the PC and the control
 - There is likely some cancelling of model errors using that difference
 - This model prediction error can be used to calculate the uncertainty deduction
 - However, this model prediction error will not be the appropriate modelling uncertainty for the model-based estimates of the SOC change over the project area that will be compared with the “true up” SOC measurements.
 - Should an estimate of that model prediction uncertainty for one cropping system (project) also need to be estimated as part of the validation report?
 - Less cancelling of model errors so it provides an alternate measure of model performance



N₂O Emissions

- The requirement is annual emissions so requires some measurement that measures emissions in the non-growing season.
- The Validation Guidance has no requirement for the proportion of studies with non-growing season N₂O emissions measurements
 - I have required a significant proportion (>25 %) with measurements over nearly the full year and that has not been a problem.



Pooled Measurement Uncertainty

- The Pooled Measurement Uncertainty (PMU) has been based on very few studies because the data required to calculate is often not provided in the scientific papers.
 - In some cases, the PMU is entirely based on only one study.
- Developing default values of the PMU for the Validation Guidance would improve consistency among validation reports
 - Leave option to calculate the PMU based on the validation data used but require it be based on more than one study.



Bias and Fit

- Meeting the bias requirements is arguably the most important validation requirement
- The requirement that the apparent model bias is within the PMU value is conservative
 - When there are a few instances of the bias exceeding the PMU, I consider whether the size of deviation is “expected”, i.e., within the approximate 90% confidence limits for the PMU
 - For a large sample size of 28, the 90% confidence interval of PMU would be 1.7 times the PMU, while, for a sample size of three, the 90% confidence interval would be 2.325 times the PMU.
 - A larger model bias than the confidence limit would indicate a real problem that needs to be addressed
 - Have allowed several biases with “expected deviation” but have not encountered any with bias exceeding the approximate 90% confidence limits of the PMU.
- The fit requirements (90% within 90% model prediction uncertainty confidence limits) has been effectively met in all the validation reports I have reviewed.



Summary

- Reviewing validation reports has been a learning experience
 - Strive to document any deviation from the Validation Guidance to show that the integrity of the model performance is met
- Successful validation of biogeochemical models for SOC and N₂O has not been an issue but limited validation data availability has sometimes required a variance to do a holistic validation across the whole CFG and PC validation domain for each ES
 - Also presenting the bias and fit for each CFG (across PC) and each PC (across CFG) ensured weaknesses in model performance were still identified
- The Pooled Measurement Uncertainty quality is an issue because often the PMU derived from a few, sometimes only a single, study.
 - Providing default achievable PMU values with good experiment practice would be better and improve consistency across model validation reports
- The validation for criteria is very conservative and there is justification to allow some apparent study bias values to exceed the PMU value if they are within the approximate 90% confidence limits of the PMU



Thank you

Brian McConkey
Chief Scientist
Viresco Solutions
brianmcc.soils22@gmail.com



VIRESCO
SOLUTIONS



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VERIFICATION PERSPECTIVE



A team of highly-experienced professionals with expertise on a global scale.

Aster Global Environmental Solutions, Inc.

3800 Clermont St. NW | North Lawrence, OH 44666

+1 330-294-1242

info@AsterGlobal.com

www.AsterGlobal.com





Company Overview

Our Experience:

- Highly skilled and experienced team of scientists, specialists and support staff
- International network of scientists, translators, and local guides
- Successful completion of over 350 projects on six continents.





Our Credentials



Sustainable Development
Verified Impact Standard



PLAN VIVO
For nature, climate and communities



ICAO



CLIMATE
ACTION
RESERVE



Verified Carbon
Standard



ANSI National Accreditation Board

ACCREDITED

ISO 14065

VALIDATION AND
VERIFICATION BODY



ART
Architecture for
REDD+ Transactions



The Climate Registry





Experience Verifying CAR Agricultural Projects

Soil Enrichment Protocol

- CAR1459 – Indigo U.S. Project No. 1
- CAR1513 – AgriCapture Soil Enrichment #1
- CAR1673 – Truterra Carbon Program
 - In progress
- Contracted for additional SEP Projects

Nitrogen Management Protocol

- CAR1559 – Nutrien NMPP Project





Key Terms

Verification: The process used to ensure that a given project developer's reported GHG emissions reductions or removals have met a minimum quality standard and complied with the Reserve's procedures and protocols

Verification Body: ISO-accredited organization that has been approved by the Reserve to perform GHG verification activities for specific protocols

Validation: The process by which an independent validation body assesses a project plan for GHG reductions or removals as well as potential future outcomes. Validation is typically required for projects that do not follow established protocols



CAR Standard of Verification

Relevant Documents for Project Verifications:

- Reserve Offset Program Manual
- Verification Program Manual
- Applicable Reserve Protocol
 - U.S. Soil Enrichment
 - U.S. Nitrogen Management
 - U.S./Canada Grasslands
- ISO 14064-3:2019





CAR Standard of Verification

Principles of Verification

- VBs/verifiers must uphold the basic verification principles laid out in ISO 14064-3:2019.

Level of Assurance

- Level of Assurance is **Reasonable**

Materiality

- Quantitative Materiality
- Qualitative Materiality





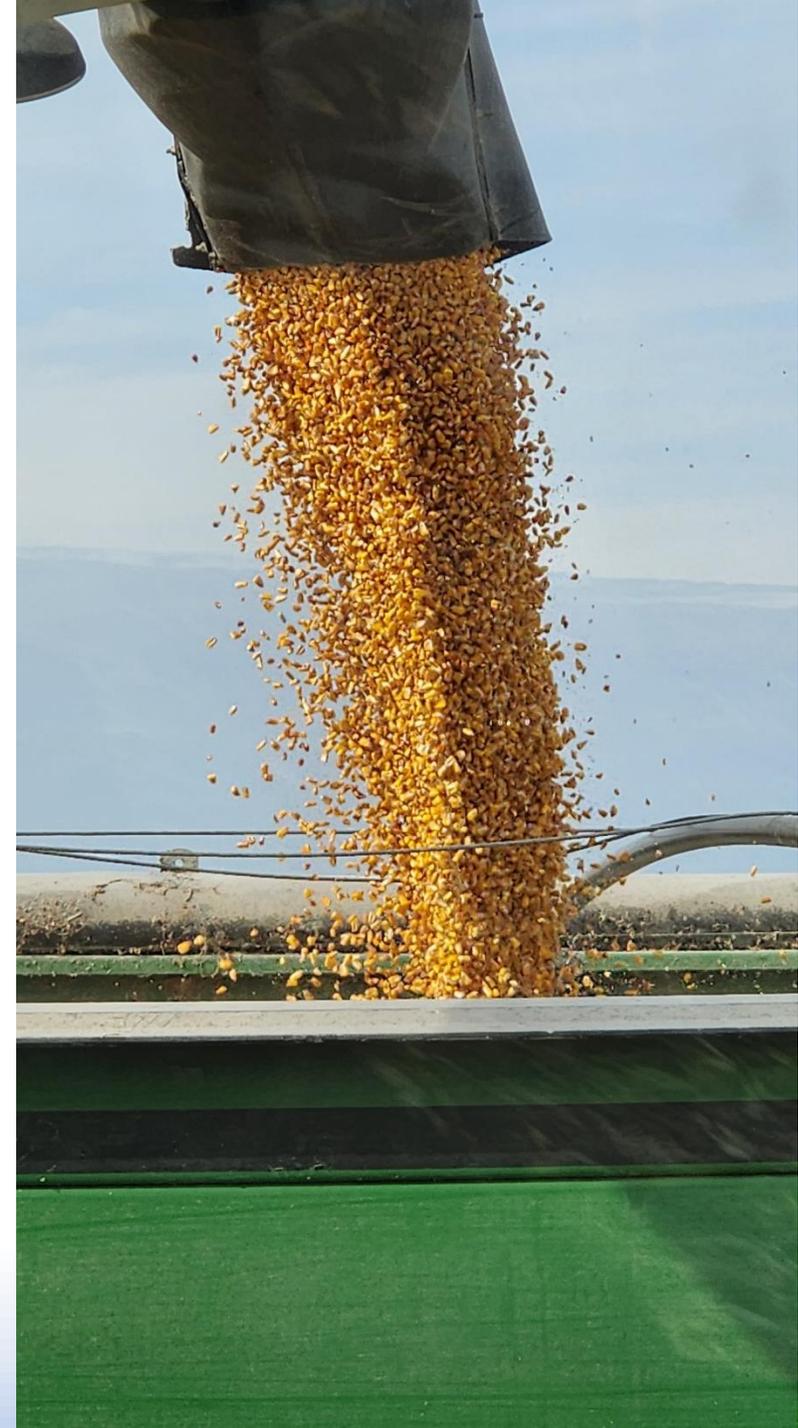
CAR Verification Program Manual

Verification Body Requirements

- ISO Accreditation
- Understanding of Reserve program manuals/protocols
- Minimum two staff members designated as Lead Verifiers

Lead Verifier Requirements

- Employed/contracted by VB
- Reserve protocol specific training
- Reserve General Verification Training
- Internal training requirements
- Staff Reporting Form





Verification Activities and Expectations

Verification Process

1. Notification of verification activities/conflict of interest
2. Scoping and planning of project activities
3. Desk review and initial site visit
4. Preparing a Verification Report, List of Findings, and Verification Statement





Core Verification Activities

All verification activities shall include the following core steps:

1. Confirm eligibility criteria
2. Review reported data and identify sources, sinks and reservoirs
3. Review management systems and methodologies
4. Verify emissions estimates





Challenges – Site Visit

Many of the challenges associated with verifying agricultural projects stem from the necessity of adopting a “risk-based approach” to reach **reasonable** assurance

Site Visit Activities:

- Interview with field manager
- Visit to project fields
- Confirmation of field boundaries/locations
- View equipment/receipts/records
- View implementation of soil sampling SOP





Challenges – Site Visit

Site Visit Challenges (SEP)

- Verifying conditions from previous year
- Timing of visit
- Logistics of visiting geographically dispersed growers
 - Virtual vs. on site

Other Challenges

- Tracking enrolled fields/status
- Permanence





Making Projects Verifiable

- Important for Project Developers to provide data in an organized manner that can be verified
- Important to have rigorous Monitoring Plan that addresses all verification requirements identified in the given protocol
- Important to provide any and all relevant documentation



Questions?





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SUMMARY & NEXT STEPS

Soil Enrichment Protocol Version 2.0 Update

- The Reserve is currently updating its Soil Enrichment Protocol with a major 2.0 update
 - Addressing various lessons learnt and reviewing new technological (i.e. soil sampling, model validation, cumulative accounting, etc) or administrative advancements (field lists, reductions vs. removals, model applicability, etc)
 - Reviewing nitrogen management and rice practices as it relates to SEP
- A technical workgroup has been formed and is currently meeting to discuss
 - First meeting was February 7th – recording and slide deck available on website
 - Next meeting March 29th – interest stakeholders can join as observers
- Estimated timeline for SEP V2.0 protocol update completion – January 2025

Questions?



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**Soil Enrichment Protocol
V2.0 Update**



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THANK YOU!