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Trevor Anderson

**CLIMATE ACTION RESERVE – UPDATES ON
VOLUNTARY CARBON OFFSET PROTOCOLS FOR THE
AGRICULTURAL SECTOR**

Nitrogen Management Project Protocol (NMPP)

- Background
- Development to Version 2.0
- Key Features of Version 2.0

Grassland Project Protocol (GPP)

- CIG update



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NITROGEN MANAGEMENT

Background: NMPP

June 2012: Nitrogen Management Project Protocol (NMPP) v1.0 adopted

- **Objective:** To **reduce N₂O emissions by adopting practices** that further improve nitrogen use efficiency (NUE) beyond what is projected to happen in the future, absent any incentives provided by a carbon market
- **Creditable Activities/Crops/Areas:** synthetic N Rate Reductions/Corn/12 States

January 2013: NMPP v1.1 released (current version)

2013-2014: Scoped potential expansion; insufficient data

2016-2018: Developed protocol update to version 2.0

October 2018: **NMPP v2.0 presented to Board for approval**

Development: NMPP v2.0

Made possible thanks to EDF-led 2015 Conservation Innovation Grant (CIG)

Goals:

- Expand applicability to additional activities, crops & regions
- Enhance usability & simplify quantification
- Maintain scientific accuracy & GHG accounting best practices

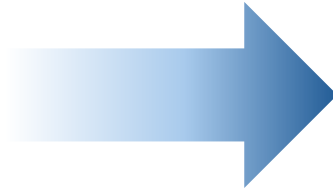
Outcomes:

- Increased applicability (i.e., additional activities/crops/regions)
- Enhanced project and aggregate structure
- Improved protocol elements (e.g., additionality criteria)
- Simplified quantification methodology
- Streamlined verification process

Increased Applicability - Eligible Activities

NMPP v1.1:

- Synthetic N Rate (NR) Reductions



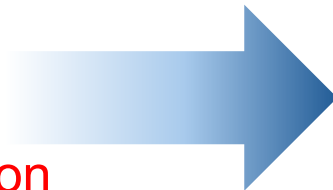
NMPP v2.0:

- Synthetic NR Reductions
- Nitrification Inhibitors (NI)
- Slow Release Fertilizers (SRF)

Additional Activities

NMPP v1.1:

- Organic N
- Emergency Irrigation



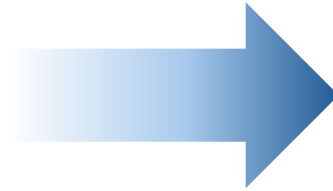
NMPP v2.0:

- Organic N
- Irrigation
- Tillage Practice

Increased Applicability - Eligible Crops

NMPP v1.1:

- Corn (grain)
- Corn (silage)

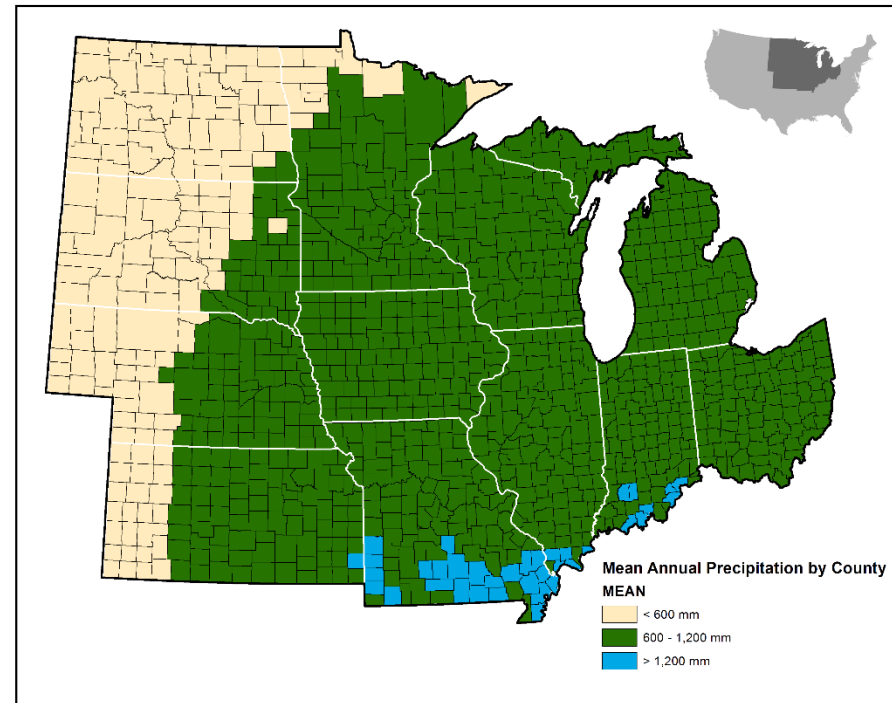


NMPP v2.0:

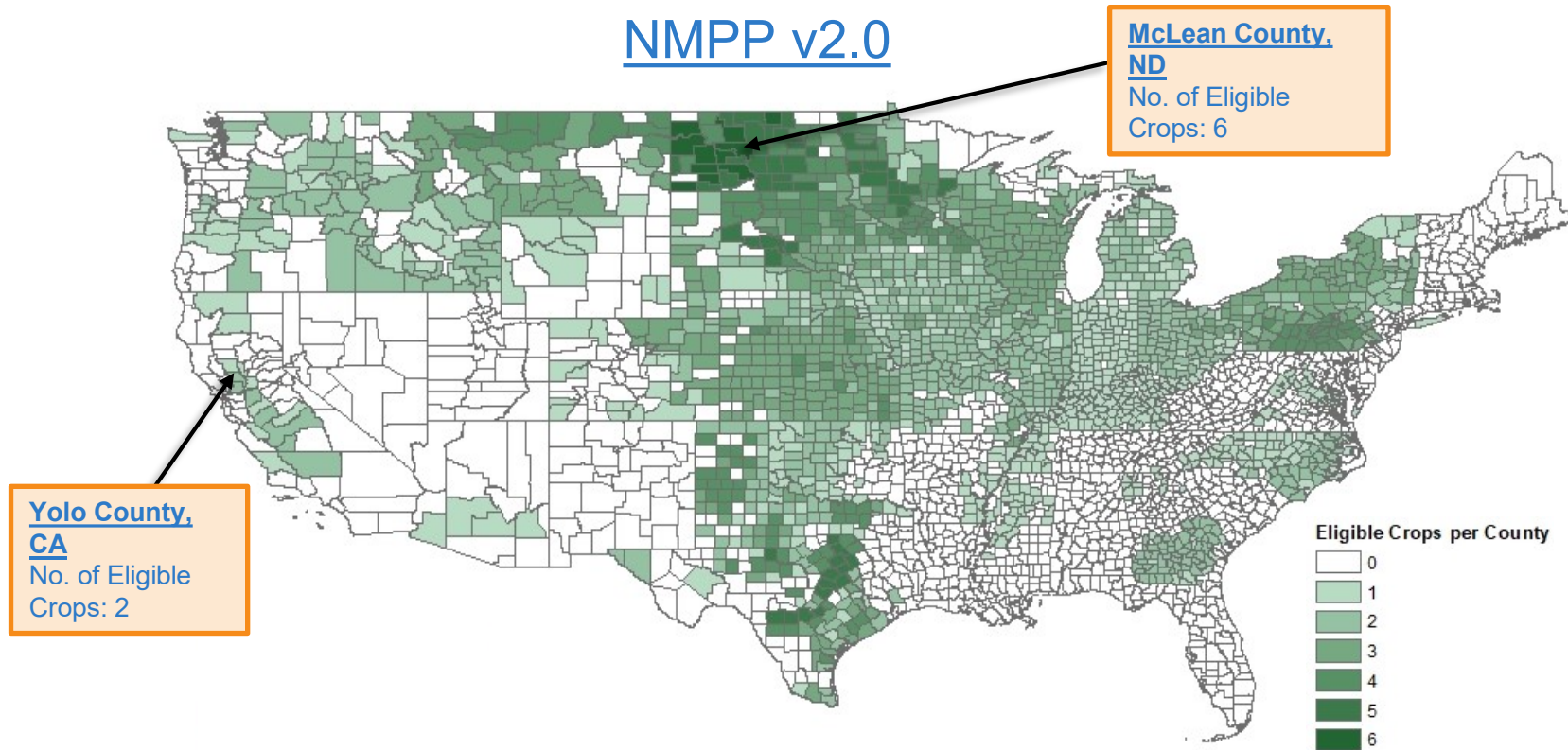
- Corn (grain)
- Corn (silage)
- Barley
- Cotton
- Oats
- Sorghum
- Spring Wheat (Durum)
- Spring Wheat (w/o Durum)
- Tomatoes (processing)
- Winter Wheat

Increased Applicability - Eligible Regions

NMPP v1.1



Increased Applicability - Eligible Regions



Enhanced Project and Aggregate Structure

Project:

- Expanded to allow for “in-project” aggregation: multiple farmers, fields, crops and regions can now come together under a single project

Aggregate:

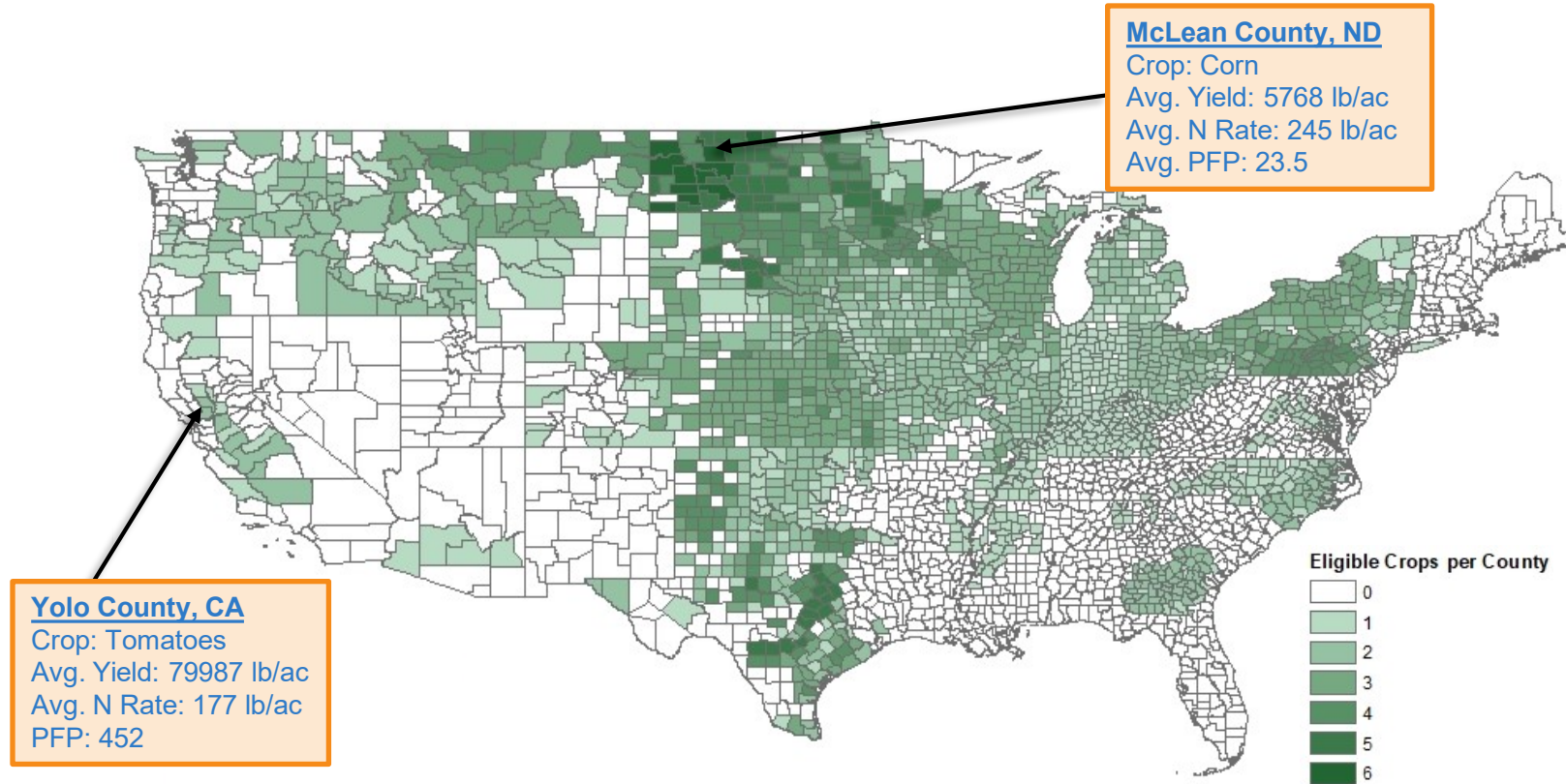
- Modified aggregate approach to take on “cooperative” structure introduced in the Reserve’s Grassland Project Protocol (GPP) v2.0
- Projects may be submitted, managed and verified as a collective, while still allowing for credits to be traceable to each individual project

Projects must pass a standardized performance standard test for N rate reductions each reporting period to be considered additional:

Project NUE > Benchmark NUE

- NUE = Partial Factor Productivity (PFP)
- PFP = Crop Yield / Total N Rate
- Benchmarks are based on *3-year county average* yields (USDA-reported) and N rates (estimated)
 - Developed tool in Excel to look up benchmarks and self-assess eligibility
- Assessed at the field level

Performance Standard Test - Examples



Simplified Quantification – Baseline Scenario

Baseline Look-Back Period: Period of at least 3 years immediately prior to the field's start date that comprises at least 3 eligible crop cultivation years

Baseline Average N Rate: Average amount of N applied to the eligible crop in the project field over the baseline look-back period

Selection of Average Baseline N Rate - Hierarchical Approach

1. Historical N application records

2. Historical expert recommendations

3. County average N rate benchmarks

➤ If no/insufficient records

➤ If no/insufficient records or agronomic guidance

Simplified Quantification – Project

NMQuanTool: User-friendly quantification tool developed in Excel by our contractor, Colorado State University, to calculate N₂O emission reductions

Field Name	State	County	Crop	Field Acres	Nitrogen Fertilizer Reduction (%)	Irrigated?	Enhanced Efficiency Fertilizers?	Conversion to Short Term No-Till?
1	ND	McLean	Corn	500	20% fertilizer reduction	No	None	No
2	CA	Yolo	Tomatoes	200	30% fertilizer reduction	Yes	Nitrification Inhibitor	No

Field Name	Acres	Baseline emissions (tCO ₂ -e / field)	Emission Reductions (tCO ₂ -e / field)
1	500	215.050	14.739
2	200	88.951	33.309

	Acres	Total Project Baseline emissions (tCO ₂ -e)	Total Project Emission Reductions (tCO ₂ -e)
Total	700	304.00	48.05

Calculated outside of NMQuanTool:

- N₂O emissions from increases in organic N rate (*if applicable*)
- CO₂ emissions from increases in fossil fuel use (*if applicable*)

Project emissions reductions must be verified for each reporting period before credits can be issued

- Site visits required for a minimum of 5% of the total number of eligible fields in each project
 - Informed by risk-based, random sampling approaches
- Additional desktop reviews based on random sampling
- No nitrate testing requirements

- Holding NMPP v2.0 training session – end of November 2018
- Developing NM handbook to support project developers
- First NM project in the pipeline:
 - Good size (~50,000 acres); enroll more acres in subsequent years
 - Variety of crops and regions
 - Project listing under version 1.1 – anticipated 2018
 - To transition to version 2.0
 - Test case for protocol and project feasibility



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AVOIDED GRASSLAND CONVERSION

Grassland Project Protocol (GPP)

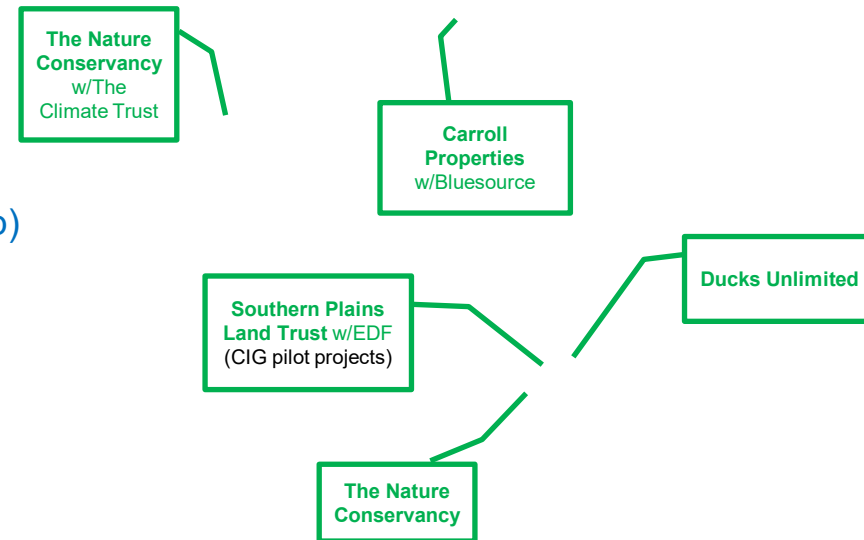
Avoided conversion of grassland to cropland



- 2015 CIG for protocol implementation
 - Climate Action Reserve (lead)
 - EDF
 - K-Coe Isom
 - The Climate Trust
 - SCS Global Services
 - C-AGG
- Deliverables
 - GPP v2.0 update (Jan 2017)
 - Financial feasibility tool
 - Stakeholder outreach
 - Verifier training
 - Development and verification of pilot projects
- CIG to be completed this year

Existing projects

- Registered (verified) projects (3):
 - Southern Plains Land Trust, Colorado (2, co-op)
 - Developed by EDF, ca. 8,200 CRTs/yr
 - Supported by NRCS Conservation Innovation Grant
 - May Ranch, Colorado (1)
 - Developed by Ducks Unlimited, ca. 10,000 CRTs/yr
- Listed projects (6):
 - Southern Plains Land Trust, Colorado (1, co-op)
 - Developed by EDF, ca. 2,000 CRTs/yr
 - Supported by NRCS Conservation Innovation Grant
 - The Nature Conservancy, Oregon (3, co-op)
 - Developed by The Climate Trust, ca. >6,300 CRTs/yr
 - Carroll Ranch, Montana (1)
 - Developed by Bluesource, ca. 12,100 CRTs/yr
 - JE Canyon Ranch, Colorado (1)
 - The Nature Conservancy, ca. 6,500 CRTs/yr



Summary

Total projects submitted (pilot projects)	9 (3)
Total cooperatives (underlying projects)	2 (6)
Total CRTs issued (tCO₂e)	18,200
Total acres protected	44,660



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QUESTIONS?

Nitrogen Management Project Protocol

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