

An Ag Industry Perspective on GHG Modeling Needs

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Monsanto's Carbon Neutral Commitment: (Dec. 1, 2015)

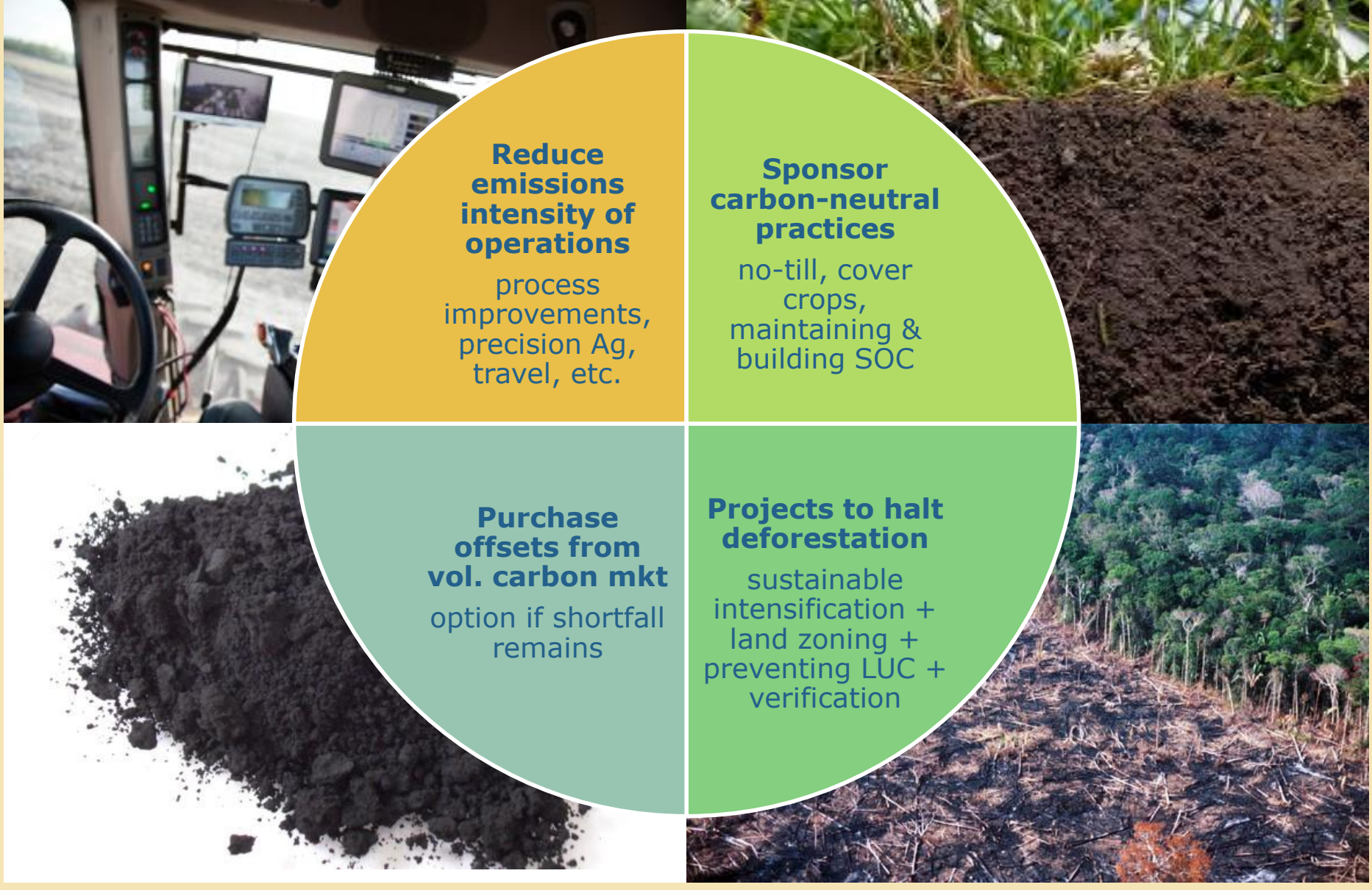
- Monsanto commits to achieve a carbon-neutral footprint across its entire operations by 2021
- The company will:
 - drive carbon neutral crop production practices in seed production operations
 - provide incentives to farmer customers who adopt carbon neutral crop production methods in exchange for associated carbon reduction values
 - share the data and modeling results

Why make this commitment?

- Climate change is bad for environment & business
- Ag is a significant source of emissions
- Both adaptation + mitigation are needed
- Change in practices could lead to new opportunities



What is the Path to Carbon-Neutral?



Reduce emissions intensity of operations

process improvements, precision Ag, travel, etc.

Sponsor carbon-neutral practices

no-till, cover crops, maintaining & building SOC

Purchase offsets from vol. carbon mkt
option if shortfall remains

Projects to halt deforestation

sustainable intensification + land zoning + preventing LUC + verification

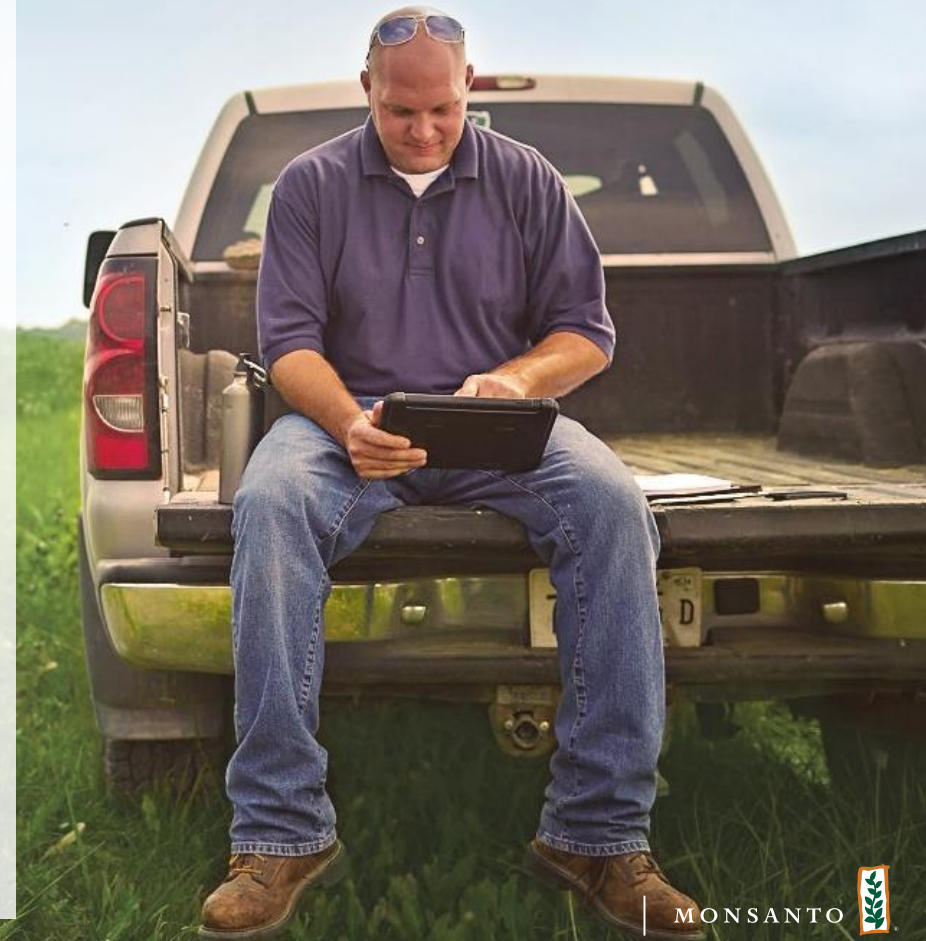
Barriers to Reaching Scale

On-Farm

- Incentive costs
- Data access & privacy

Industry-Wide Needs

- Harmonized GHG accounting standards
- Efficient paths to GHG quantification
 - Model-based
 - Default tables
- Low-cost verification



Data access and privacy to be addressed by digital Ag systems

Agronomy



Weather



Equipment



INTEGRATED DECISION SUPPORT





2016 USDA-NRCS Conservation Innovation Grant: **Scalable On-Farm GHG Reductions & Water Quality Improvements:** Development and implementation of an economical and verifiable inseting and accounting framework

Awardee: National Corn Growers Assoc / Soil Health Partnership

Partners: Monsanto, AgSolver, Applied GeoSolutions, DNDC-ART, Climate Smart Group and CropGrowers LLC

CIG Project Deliverables:

- Carbon accounting and inseting framework
- Documentation of water quality modeling metrics
- Low-cost, low-touch verification system
- Integration of precision business planning
- On-farm demonstration (Soil Health Partnership)

Prerequisites:

- Standardized GHG metrics, terminology and accounting methods
- Scientific support for model-based quantification of GHG reductions

Requests of GHG Modeling & Policy Community:

1. Government-supported standardized metrics, terminology & accounting
2. Support for science-based GHG modeling to establish baselines & reductions (based on #1)
3. Regionally-specific default tables for GHG reduction values for Ag practice changes (based on #2)





Thank you!



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