



# Establishing a Carbon-Neutral Goal for Monsanto Company by 2021

Michael Lohuis, Ag Environmental Strategy Lead  
ACES Conference, Jacksonville, FL (Dec. 6, 2016)



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

- Monsanto commits to achieve a carbon-neutral footprint across its entire operations by 2021
  - Continue to reduce GHG emissions intensity in operations
  - Drive carbon neutral cropping in seed production operations
  - Support the adoption of carbon neutral cropping practices with through collaboration with its farmer customers in exchange for associated carbon reduction values
  - Develop transparent framework for carbon accounting, reporting and verification

# Why make this commitment?

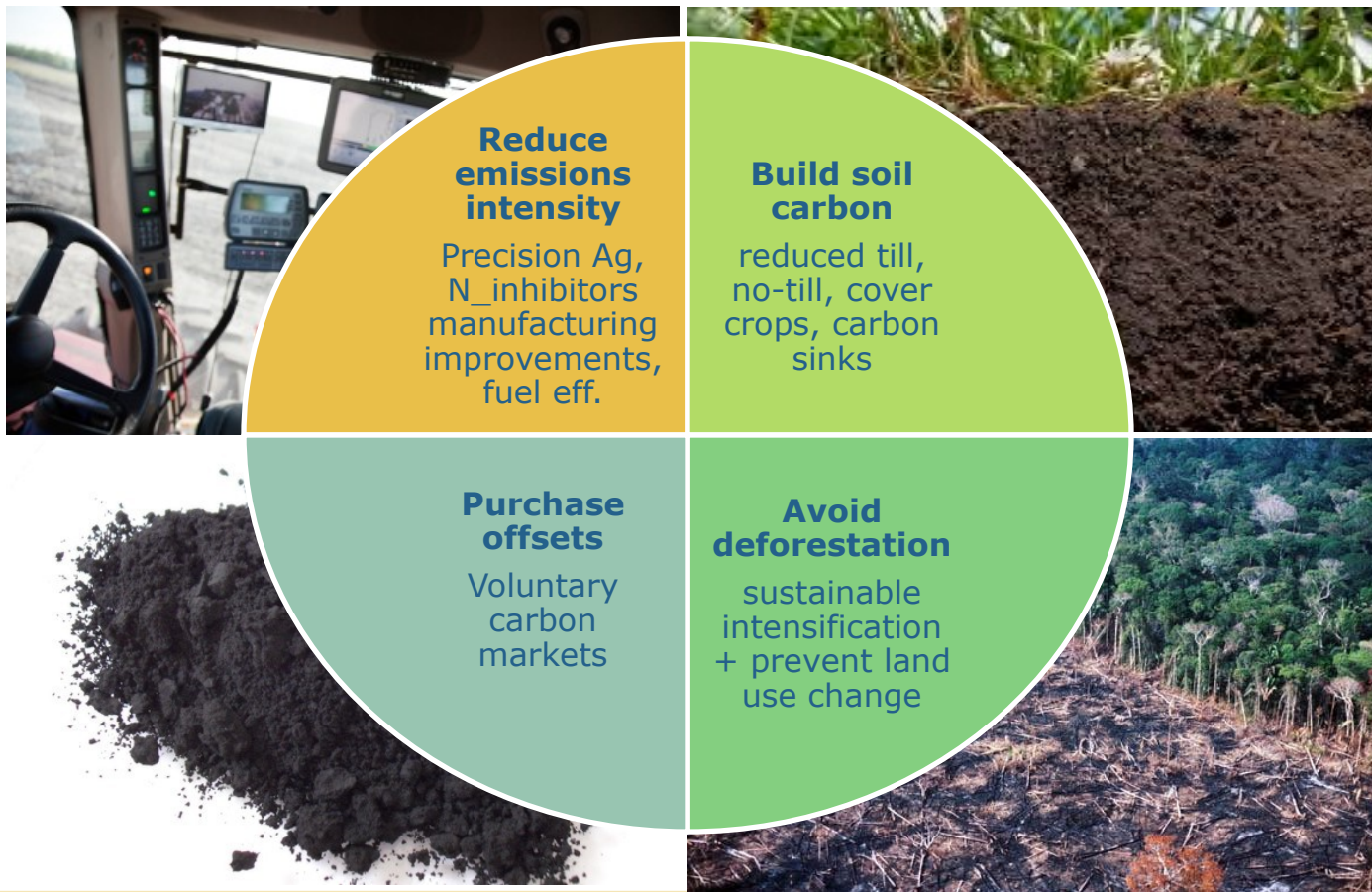
- Climate change is bad for environment & business\*
- Adaptation is not enough
- Corporate responsibility
- Competitiveness and new opportunities

\*Food security is #1 and Climate change is #4 on list of top global challenges by [World Economic Forum](#)

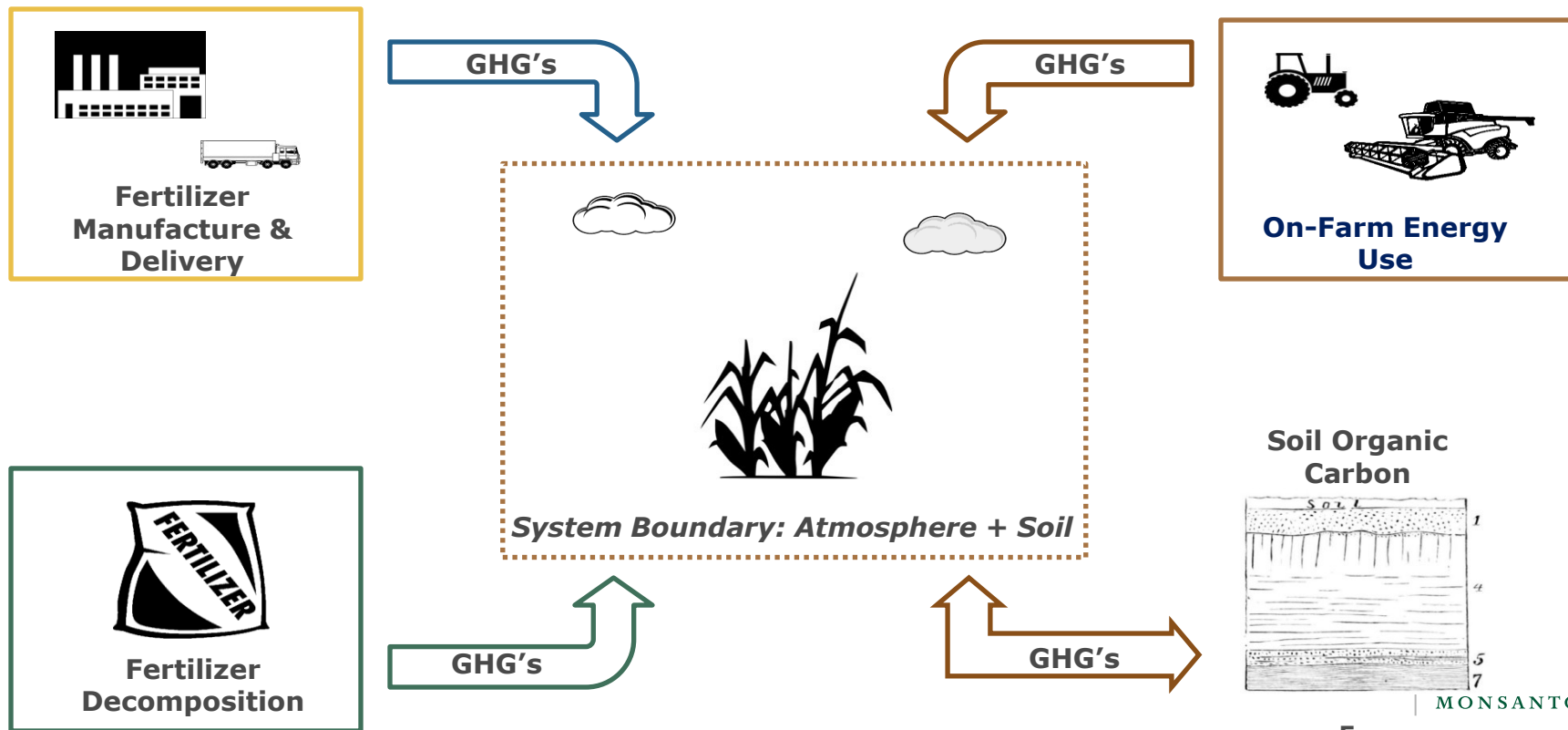


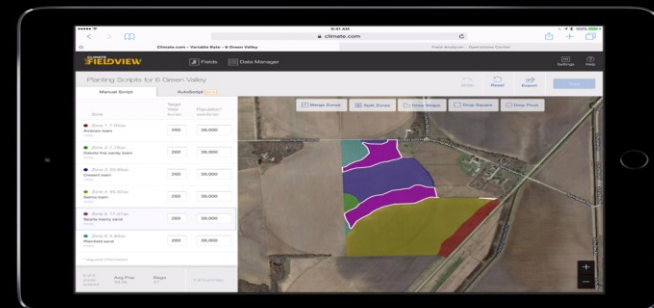
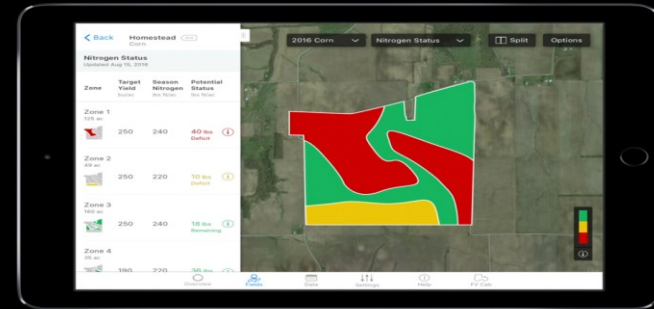
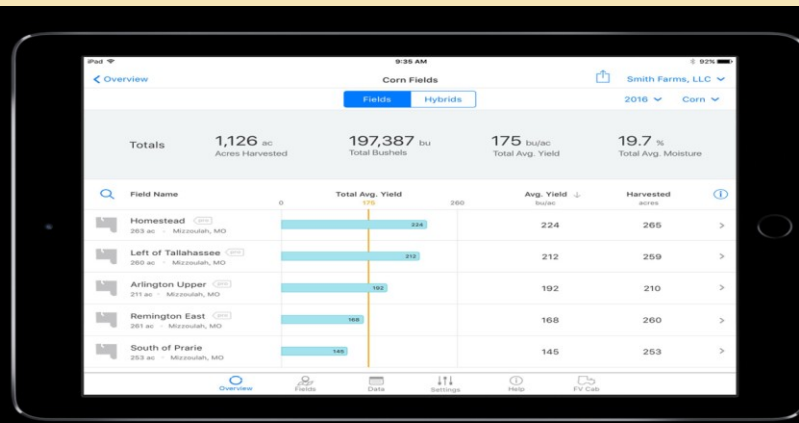


# What is the Path to Carbon-Neutral Agriculture?



# Visualization of Life Cycle Assessment on a “Cradle-to-Farm Gate” Basis







# Visible Soil Erosion after one storm

## No-Till

Double Crop in  
Wheat Residue

0.20  
tons/ha

Courtesy of:  
Dr. Blake Brown,  
UT Milan REC

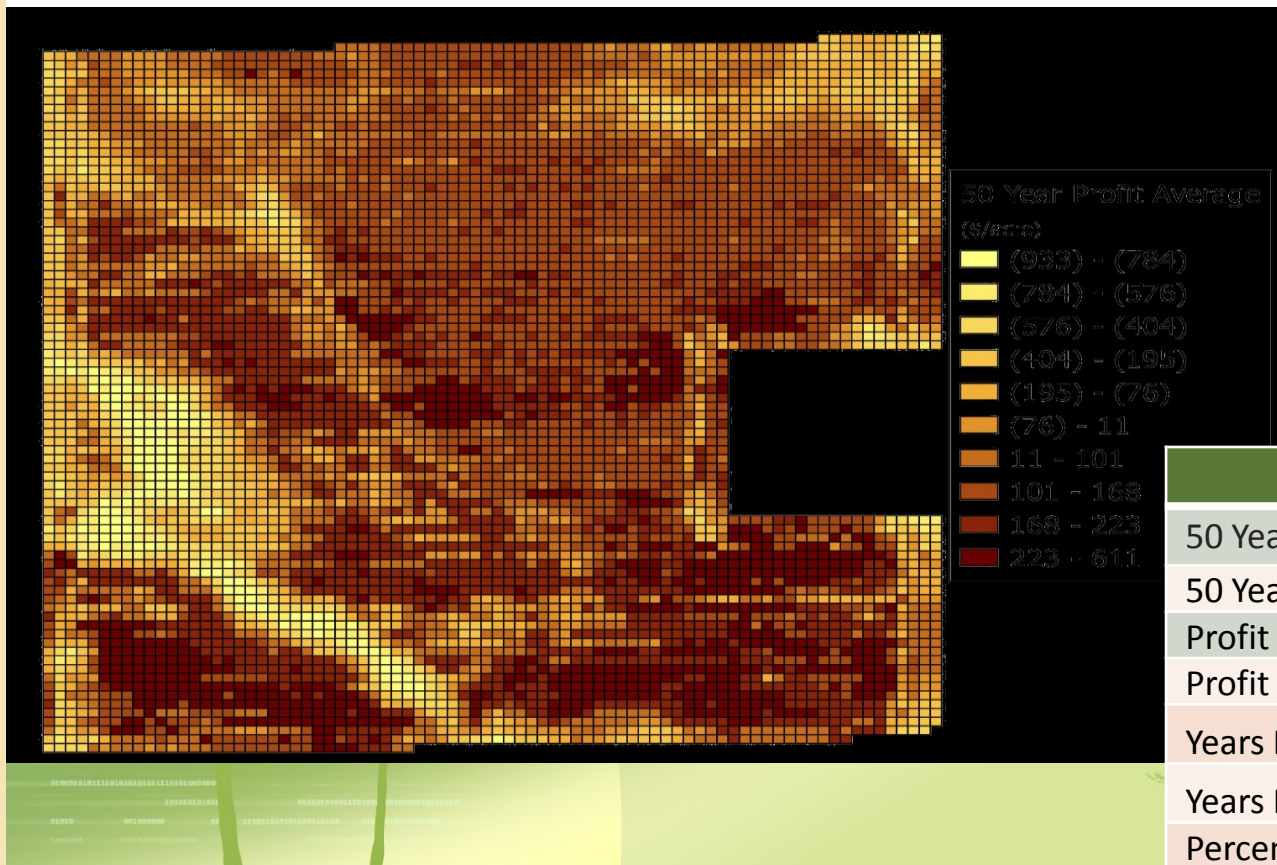


## Tilled

Single Crop  
Soybeans

29  
tons/ha

# Subfield Financial Analysis: Current Practices

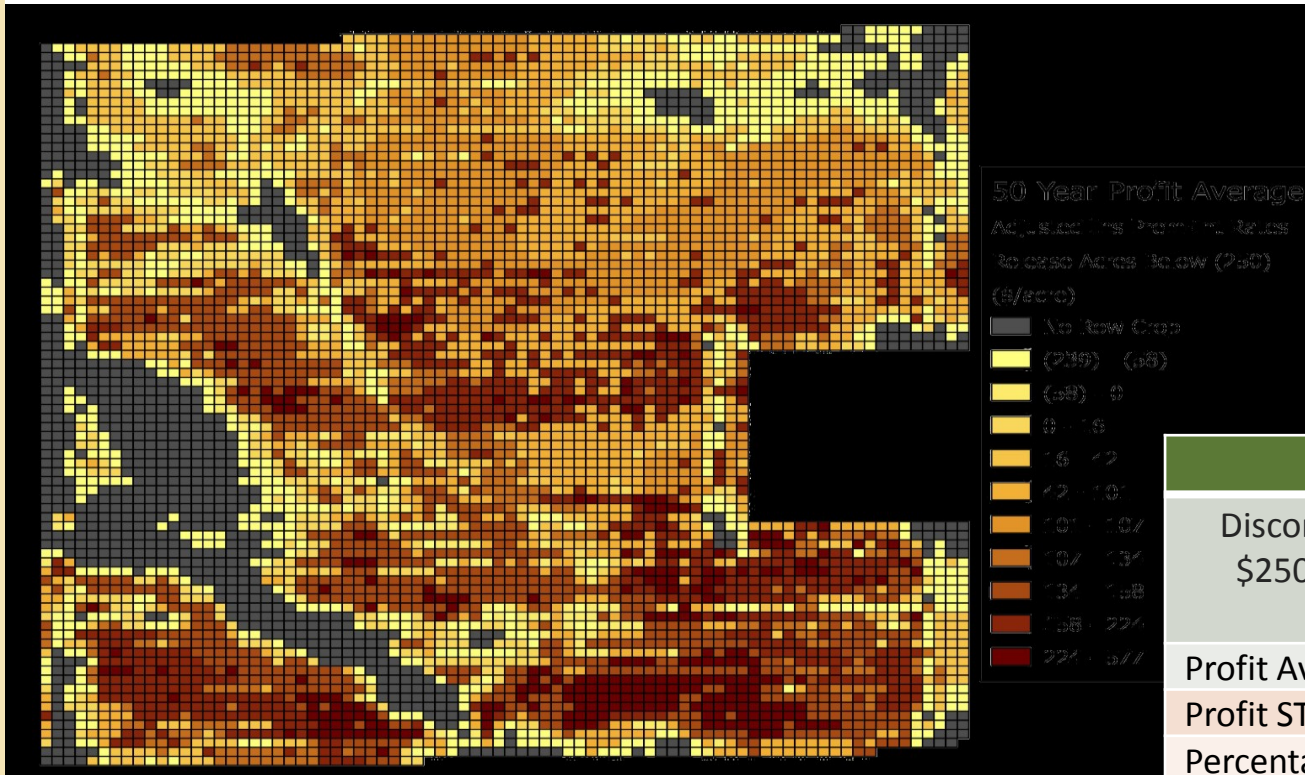


## Summary

50 Year Yld Ave:	170	bu/acre
50 Year Yld STD:	38	bu/acre
Profit Average:	\$47	\$/acre
Profit STD:	\$235	\$/acre
Years Profitable Ave:	31	
Years Profitable STD:	14	
Percentage of Field Profitable:	74%	



# Subfield Financial Analysis: Release Acres



- Profits doubled by not farming 3-15%
- Profit STD cut in half
- Invest in best acres
- Limit inputs for rest
- Unprofitable acres become "Eco-Acres"?

## Summary

Discontinue ops on areas with avg. loss > \$250/acre with risk adjusted insurance premiums and int. rates

Profit Average:	\$76	\$/acre
Profit STD:	\$124	\$/acre
Percentage of Field Profitable:	72%	
Percentage of Field Used Profitable:	81%	

# Reaching Scale

## On-Farm Challenges

- Practice change costs/risks
- Data access & privacy

## Industry Needs

- Harmonized GHG accounting
- Efficient GHG quantification
- Low-cost verification
- Business synergy



# **2016 USDA-NRCS Conservation Innovation Grant:**



## **Scalable On-Farm GHG Reductions & Water Quality Improvements:**

Development and implementation of an economical and verifiable insetting 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 insetting 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



# The Carbon-Neutral Collaborative

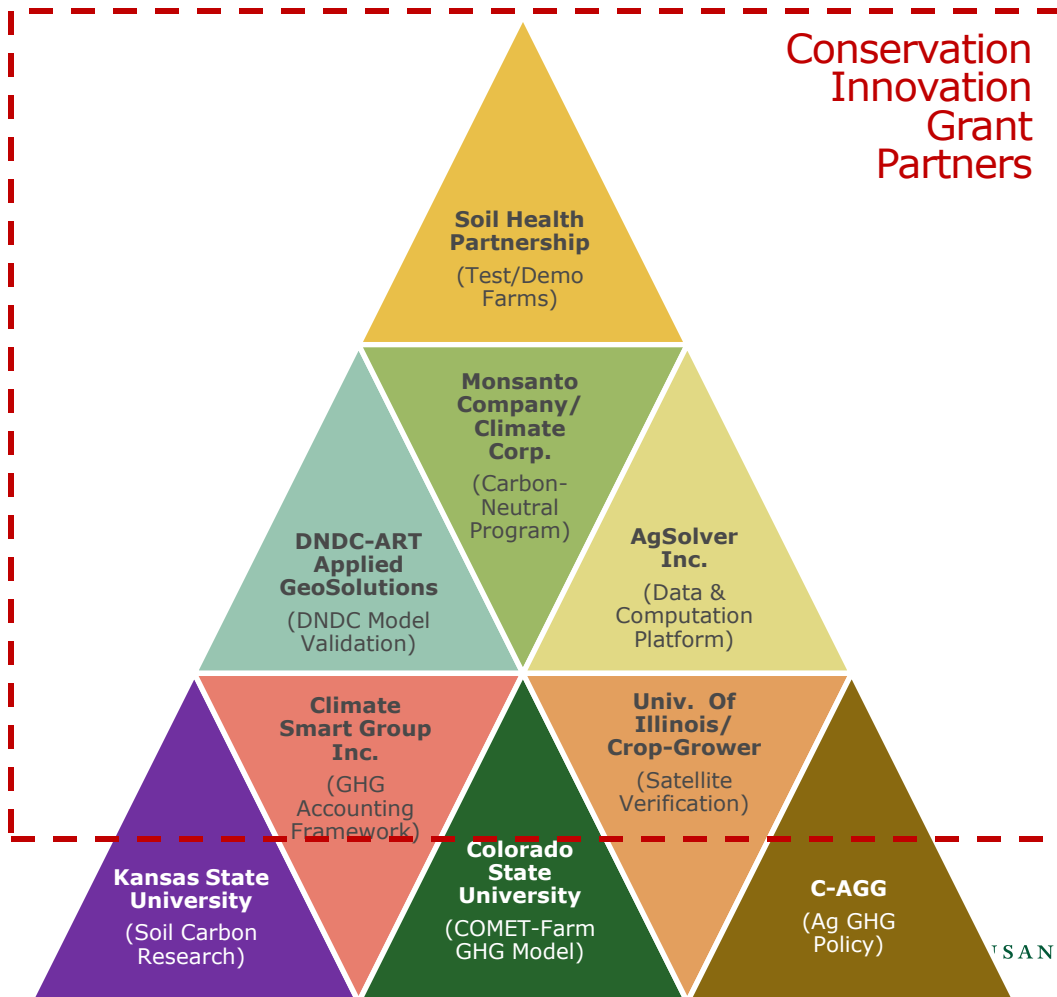
**Challenge:** To achieve net GHG neutrality via reducing direct GHG emissions, storing soil carbon and avoiding indirect GHG emissions

**How?** This collaboration of experts is helping industry in the goal of achieving carbon-neutrality. Their expertise in GHG reduction, quantification and verification will help develop a path to GHG mitigation at an industry scale.

## Benefits:

- climate change mitigation
- climate resilience
- improved soil health
- reduced soil erosion
- improved water quality
- ecosystem services

Conservation  
Innovation  
Grant  
Partners





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