

# **USDA/NRCS Conservation Innovation Grant\_ Green House Gas**

## **“Agricultural Soil Carbon in the Palouse Region: Developing a Large-scale Agricultural Soil Carbon Transaction in the Palouse Region”**



Applied Ecological Services, Inc.



theearthpartners



# What Are The Major Goals Of The Project?

- **Demonstrate the model at scale.**
  - In Phase 1, develop a soil carbon partnership with landowners on 300,000 acres.
  - In Phase 2, extend partnership to over 1,000,000 acres
  - In both phases, provide measurement/performance-based support for marketplace transactions.
- **Demonstrate a low-cost aggregation model.**
  - TEP/AES team will develop, test, document, refine a low-cost aggregation model.



# VCS Validation

## TEP Soil Carbon Quantification Method (for Use in Project)

- Provides comprehensive ecosystem, agricultural system, and conservation project carbon (and other GHG) standard measurement, modeling, and accounting methodology.
- Technically peer reviewed by ~ 20 of top carbon scientists, methods and marketplace experts, and dozens of other partners.
- Tested/confirmed in NA, SA, CA, NZ, AUS, Western Europe as cost effective, and a practical and robust technical methodology.
- Has been “VCS pre-validated”, now awaiting public posting/comment.



# What Are The Major Goals Of The Project?

- **Showcase a successful land-based soil carbon transaction.**
  - ensure project credits will be accepted by the California Air Resources Board under AB-32, and VCS and ACR.
- **Develop data and templates to inform policy.**
  - Standardize ecosystem stratification to replicate for other Eco-agricultural-scale projects.
  - Create soil carbon baseline and change analysis measures, models, PDD, and transaction standards for the palouse ecosystem landscape.



# What Is The Project Timeline?

 August 1, 2011 – July 31, 2014 (3 years)



# Which GHG Are Targeted By The Project, And/Or Which Activities?

## Agricultural Emissions

- Reduced tillage
- Reduced fertilizer use
- Reduced irrigation
- Reduced Agr-operational life cycle emissions





# Can You Provide An Estimate Of Tons Of Co2 Equivalents? (Over The Course Of The Project)

 10's of Millions of Tons of Co2 E through:

- Improved soil sequestration.
- Reduced GHG emissions from tillage
- Reduce GHG emissions from Irrigation/Anhydrous Amm. Use, etc.



# What Methods or Protocols Will The Project Use To Measure or Estimate GHG Emissions and Emissions Reductions?


## TEP's Soil Carbon Quantification Method:

- Includes direct measurement, sampling for SOC, SIC, and,
- Measurement and projection modeling for NO<sub>2</sub>, CH<sub>4</sub>, etc.





# Do You Anticipate or Envision Any Obstacles or Barriers To Achieving Your Project Goals and Outcomes as Currently Set Out, Or Activities That You Believe Will Be Challenging?

 Expanding the aggregation model and developing accurate annual confirmations of soil management.

- Our tested legal instruments are successfully working to support a new aggregation model.
- AES's very high resolution airborne multispectral imaging is being used for low cost annual confirmation of soil management behavior. (See [www.appliedeco.com](http://www.appliedeco.com))



# Have You Identified Any Data Or Knowledge Gaps Associated With The Project?

 State of the art modeling doesn't align with on-the-ground measurements!

- Existing models under predict the measured soil carbon levels.
- Existing modeled time-series SOC/SIC accrual relationships are inadequate to explain what we have measured in the field.
- Policy uncertainty-- on the value and weight given by agencies/marketplace on models where they conflict with field measurements.



# Please List The Project Partners

- Applied Ecological Services, Inc.
- The Earth Partners, LLC
- University of Missouri, Technical Team/Advisor
- EKO , Asset Management/Investors
- Sustainable Food Lab, Advisor
- Local Farm Organizations

