

Integrated Survey Data: CEAP-ARMS and Beyond (?)

By

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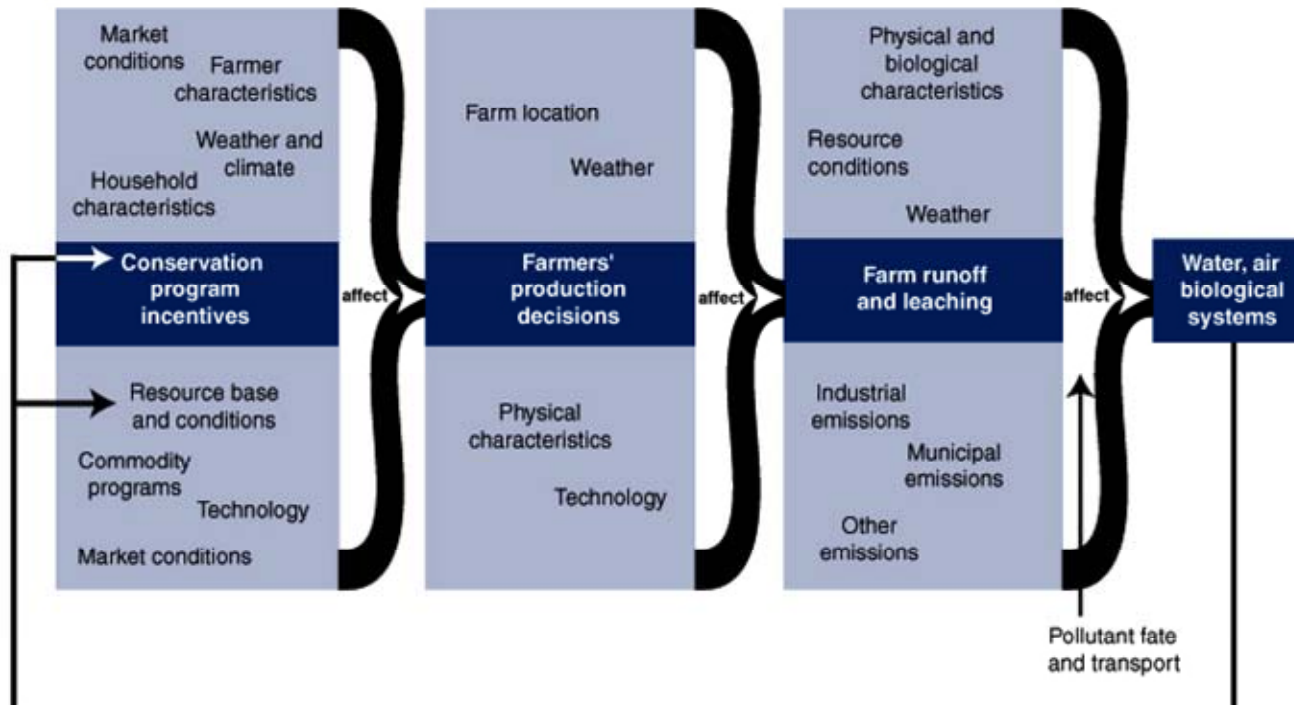
A presentation at the ERS/Farm Foundation workshop: *Data Needs for Agri-Environmental Policy Modeling and Analysis*, Economic Research Service, Washington, DC, October 15, 2007.

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CEAP-ARMS

Conservation Effects Assessment Project – Agricultural Resource Management Survey

- A joint data integration effort by USDA's NRCS, ERS, and NASS.
- CEAP-ARMS recognizes that producers do not make production practice decisions in a policy vacuum.
 - Numerous factors affect agricultural-induced environmental quality (including behavioral, biological, atmospheric, and hydrologic processes)



Source: Smith and Weinberg, Amber Waves, ERS-USDA, Special Issue, July 2006.

CEAP - - - - ARMS - - - - NRI

CEAP: Conservation Effects Assessment Project

- **(In General):** A field-level survey of conservation practices and program participation for the crop(s) on a field identified at a randomly selected National Resource Inventory (NRI) point, and integrated with NRI environmental data.
- Conducted annually by USDA's Natural Resources Conservation Service (NRCS) from 2003-06.

ARMS: Agricultural Resource Management Survey

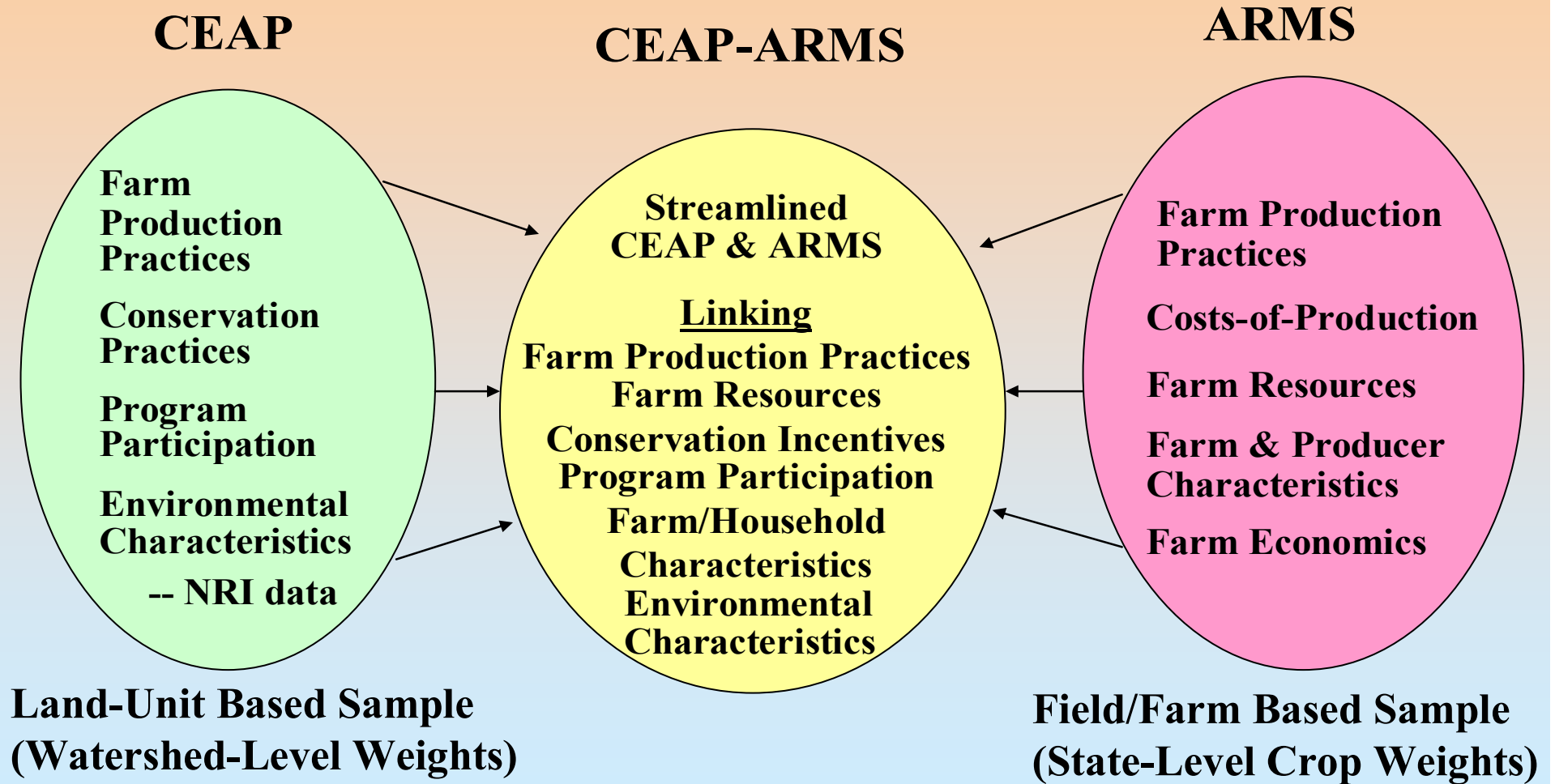
- A crop-specific, field/farm-level survey of farm production practices, costs-of-production, farm finances, and farm resource and operator characteristics.
- Conducted annually by USDA's Economic Research Service (ERS) for selected crops. [Phase I – sample design/planning; Phase II – field-level questionnaire; Phase III – farm-level questionnaire.]

NRI: National Resource Inventory

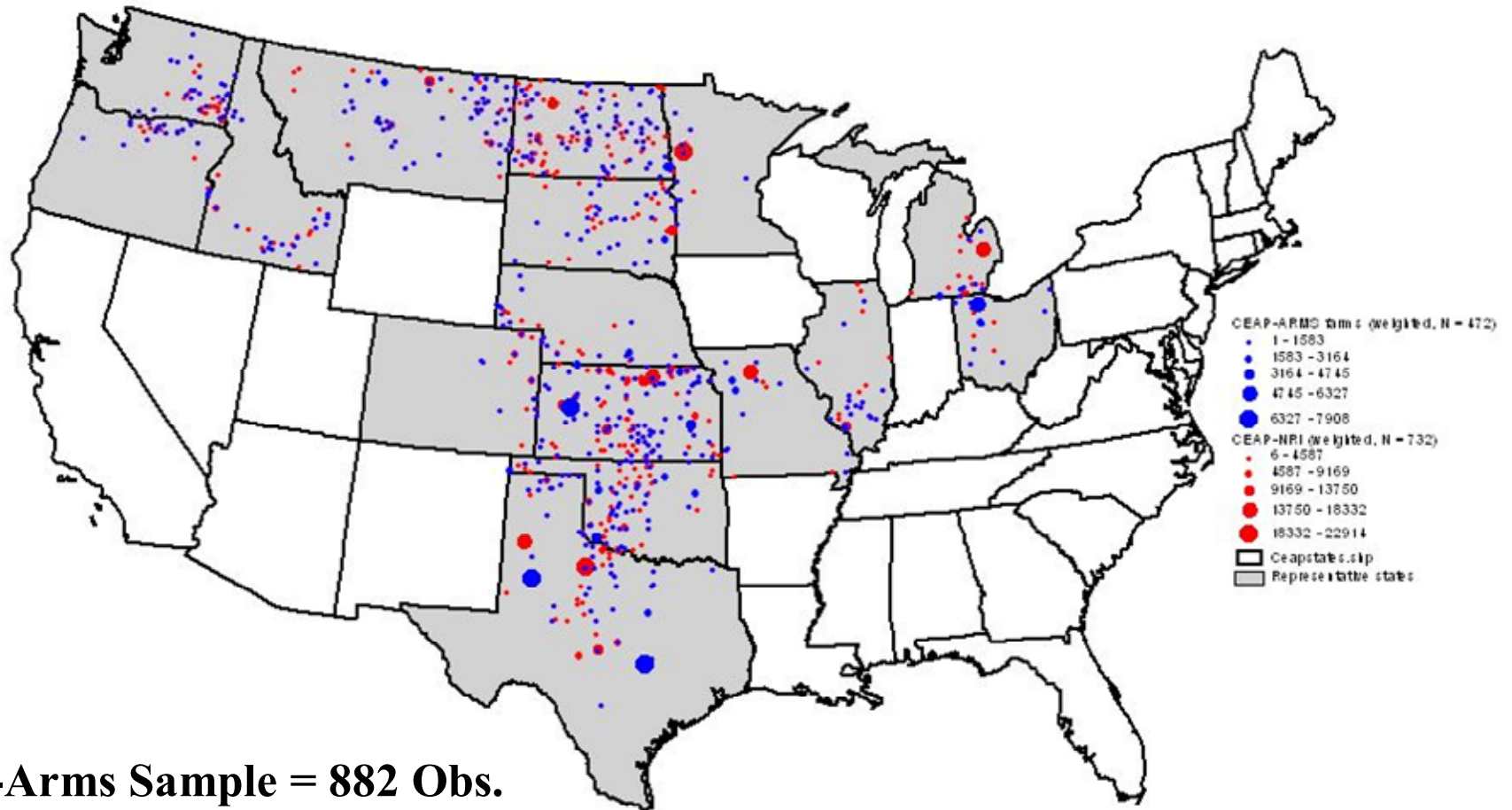
- The NRI is a scientifically based, longitudinal panel survey of the Nation's soil, water, and related resources, designed to assess conditions and trends on non-Federal lands.
- Conducted by USDA's Natural Resources Conservation Service (NRCS) in cooperation with Iowa State University's Center for Survey Statistics and Methodology. (Annual survey drawn from a population of 800,000 potential primary sample points.)

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CEAP-ARMS: Common Ground



CEAP-ARMS survey farms 2004 Wheat (16 States)



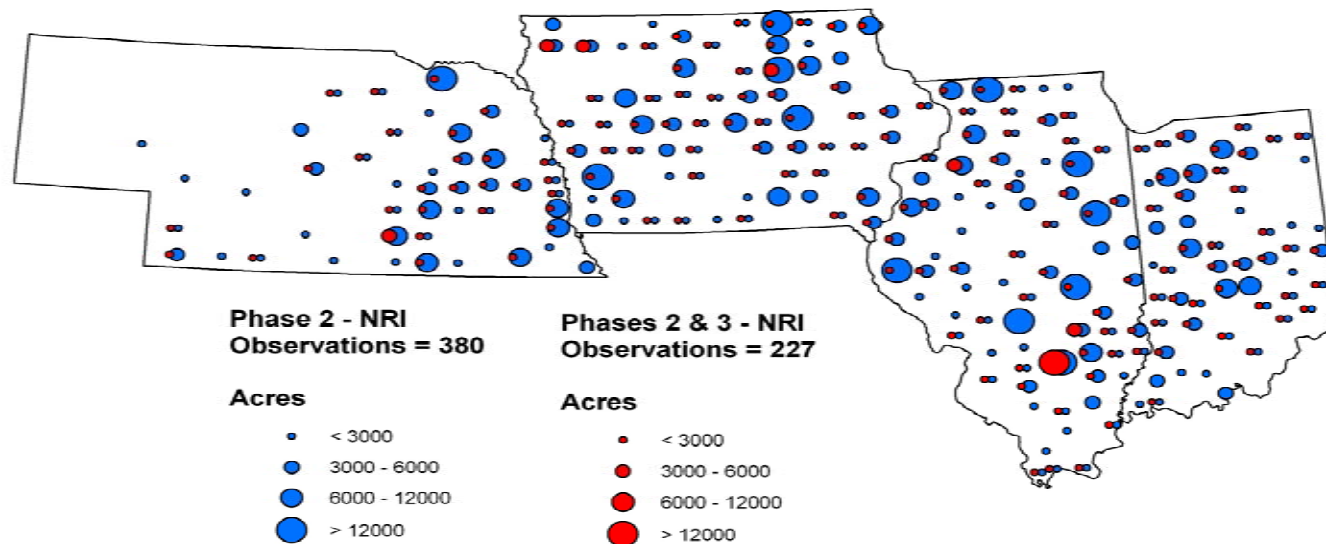
Ceap-Arms Sample = 882 Obs.

Integrated Ph. II / NRI (field level) = 732 Obs.

Integrated Ph. II / NRI / Ph. III (field/farm level) = 472 Obs.

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Spatial Distribution of the 2005 CEAP-ARMS for Corn Sample (Weighted Planted Acres)



States: IN, IL, IA, and NE

Ceap-Arms Sample = 382 Obs.

Integrated Ph. II / NRI (field level) = 380 Obs.

Integrated Ph. II / NRI / Ph. III (field/farm level) = 227 Obs.

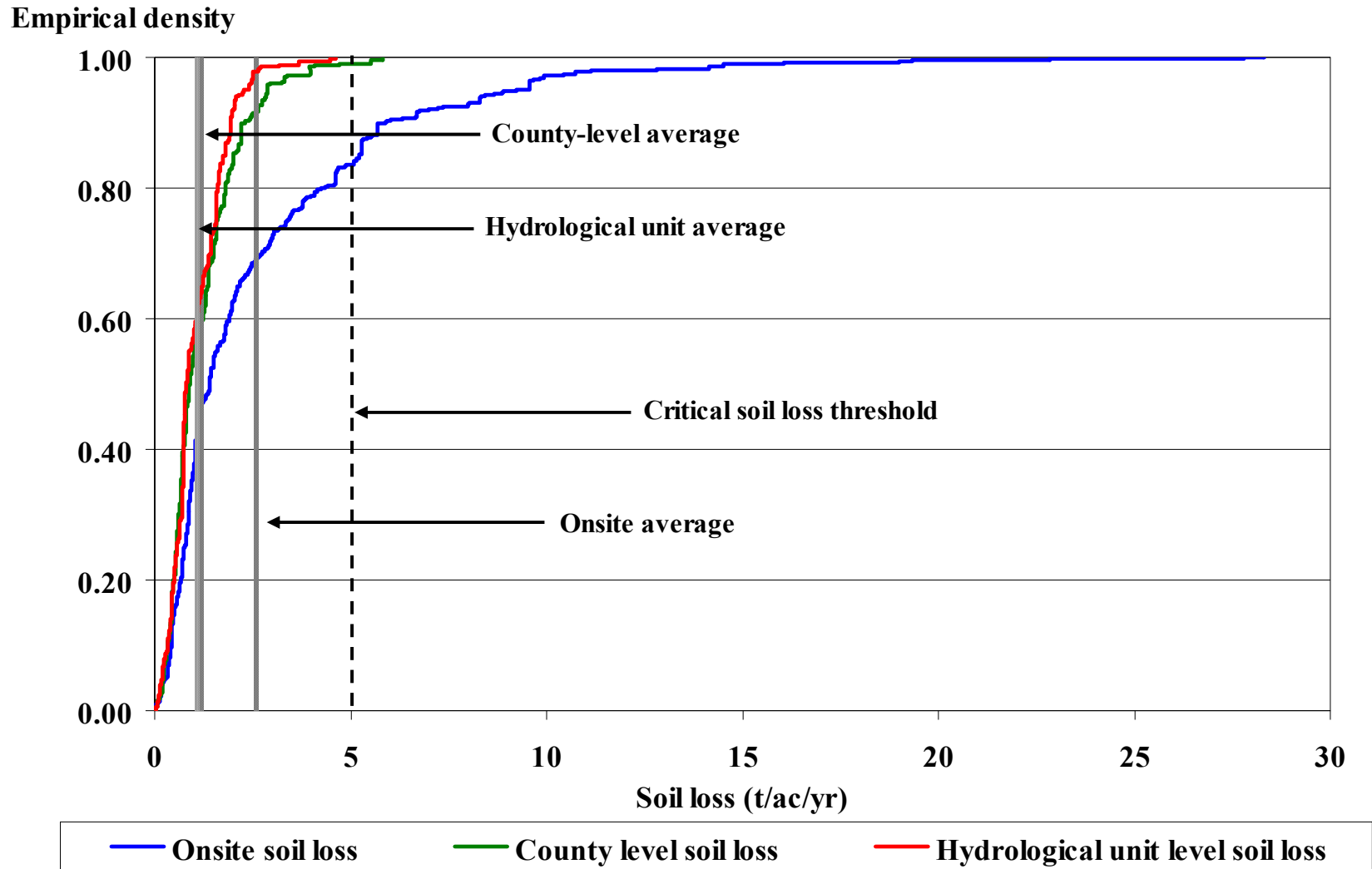
Integrated Survey Data Adds Value to Conservation Policy Analysis

- **CEAP-ARMS was only a 2-year pilot project.**
- **CEAP-ARMS research results demonstrate significant “value added” associated with using onsite environmental data when evaluating producer conservation practice behavior.**
- **Use of aggregate environmental data (for example, soil loss information) will significantly over-estimate producer response.**
- **Not accounting for environmental decision factors results in either under- or over-estimates of producer acreage response elasticities, and thereby, under- or over-estimates of conservation policy response.**

Lambert, D., G. D. Schaible, R. Johansson, and U. Vasavada. *The Value of Integrated CEAP-ARMS Survey Data in Conservation Program Analysis*, Journal of Soil & Water Conservation, Vol. 62, No. 1, 2007: 1-10.

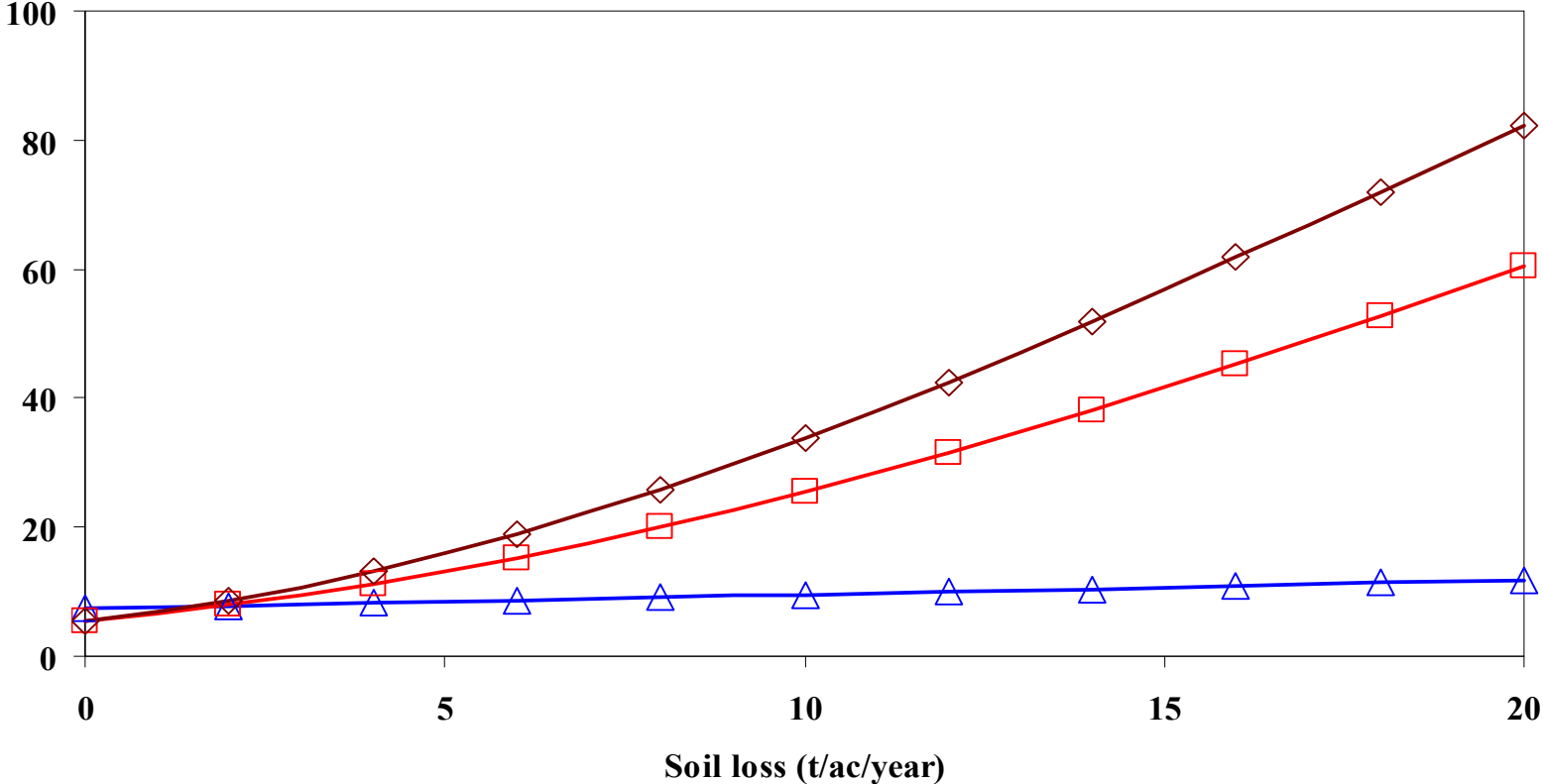
Schaible, G. D., D. M. Lambert, C. S. Kim, and S. Stefanova. *Structural Conservation Practices in U.S. Wheat Production: A Cost-Function Technology Adoption Approach*. WAEA and AAEA Selected Paper Presentations, and a journal paper under review (preliminary acceptance).

Empirical densities of aggregated and on-site field-specific 1997 NRI Universal Soil Loss Equation Readings



Model I values of predicted acres under vegetative conservation structures as influenced by USLE data resolution.

Predicted acres of conservation structure



Schaible, G. D., D. M. Lambert, C. S. Kim, and S. Stefanova. *Structural Conservation Practices in U.S. Wheat Production: A Cost-Function Technology Adoption Approach*. WAEA and AAEA Selected Paper Presentations, and a journal paper under review (preliminary acceptance).

Results demonstrate:

- That conservation program participants and non-participants respond differently to alternative conservation structural practice options.

More Specifically:

- Program non-participants place greater emphasis on the adoption of infield structural practices, while program participants emphasize perimeter-field structural practices.
- Direct productivity/profitability benefits of infield structures seem to suffice for non-participants (i.e., adoption without program incentives), while perimeter-field structures seem to require a program incentive for adoption.
 - likely because benefits of perimeter structures are perceived as being mostly off-site.
- Not accounting for additional socio-environmental decision factors will result in under or over-estimates of conservation practice acreage response elasticities (depending upon the input/output price change), for both program participants and non-participants.

Beyond CEAP-ARMS

- **Again, CEAP-ARMS was only a 2-year pilot project.**
- **Research will continue with CEAP-ARMS, but current research results demonstrate that the nexus between producer behavior, conservation programs, and reliably assessing producer response and likely environmental outcomes is integrated data.**

Data Gaps

- **No Integrated production practice, operator, program participation, farm resource and economic, and environmental data.**
 - **A revised/shortened version of CEAP-ARMS type data (revealed preference data)**
 - **with less emphasis on multi-year data, but with improved data that links: practices/costs/program vs. non-program participation/program payments/ environmental data (NRI data).**
- **Monitoring the linkage (over time) between actual environmental outcomes to specific conservation practices or bundles of practices “in place” (for both program participants and non-participants). [Probably using a more regionally-tailored survey effort.]**
- **Integrating stated preference (contingent valuation) type data with survey-based revealed preference data.**
 - **i.e., producer “bid” data for alternative bundles of conservation practices consistent with regional environmental needs.**

Thanks for the Opportunity

Forward Comments to:

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