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

By

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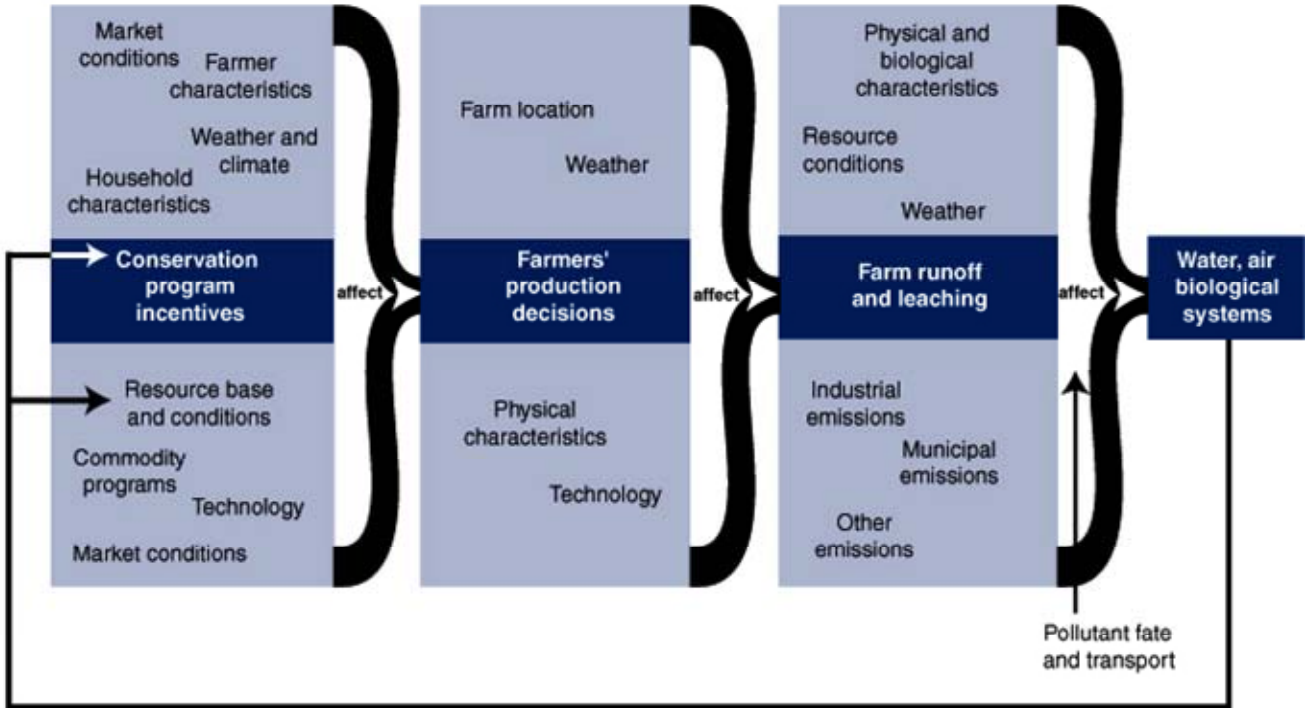
A presentation at the ERS/Farm Foundation workshop: *Data Needs for Agri-Environmental Policy Modeling and Analysis*, Economic Research Service, Washington, DC, October 15, 2007.

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

- **(<u>In General</u>): 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.**

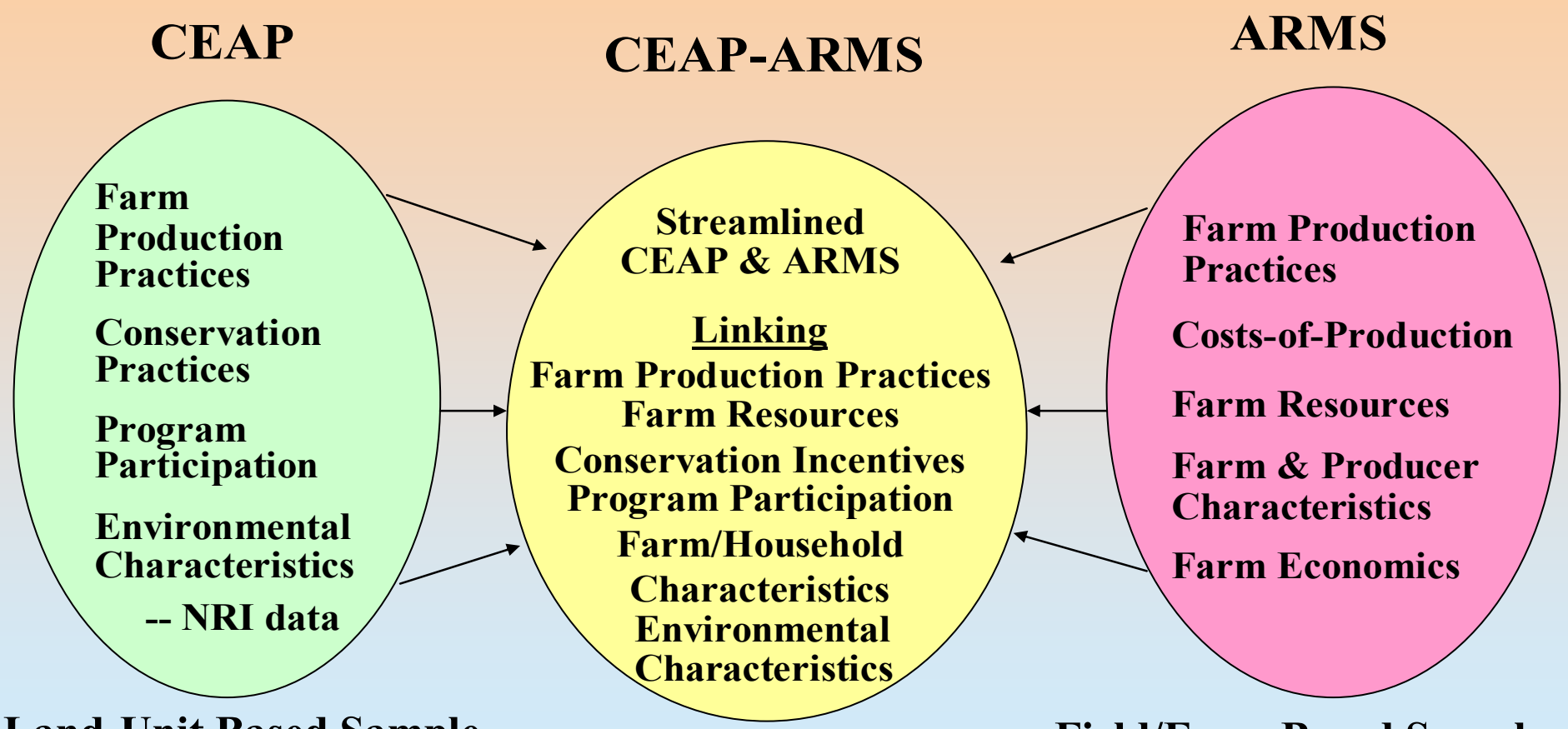
ARMS: Agricultural Resource Management Survey

- **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.)**

CEAP-ARMS: Common Ground

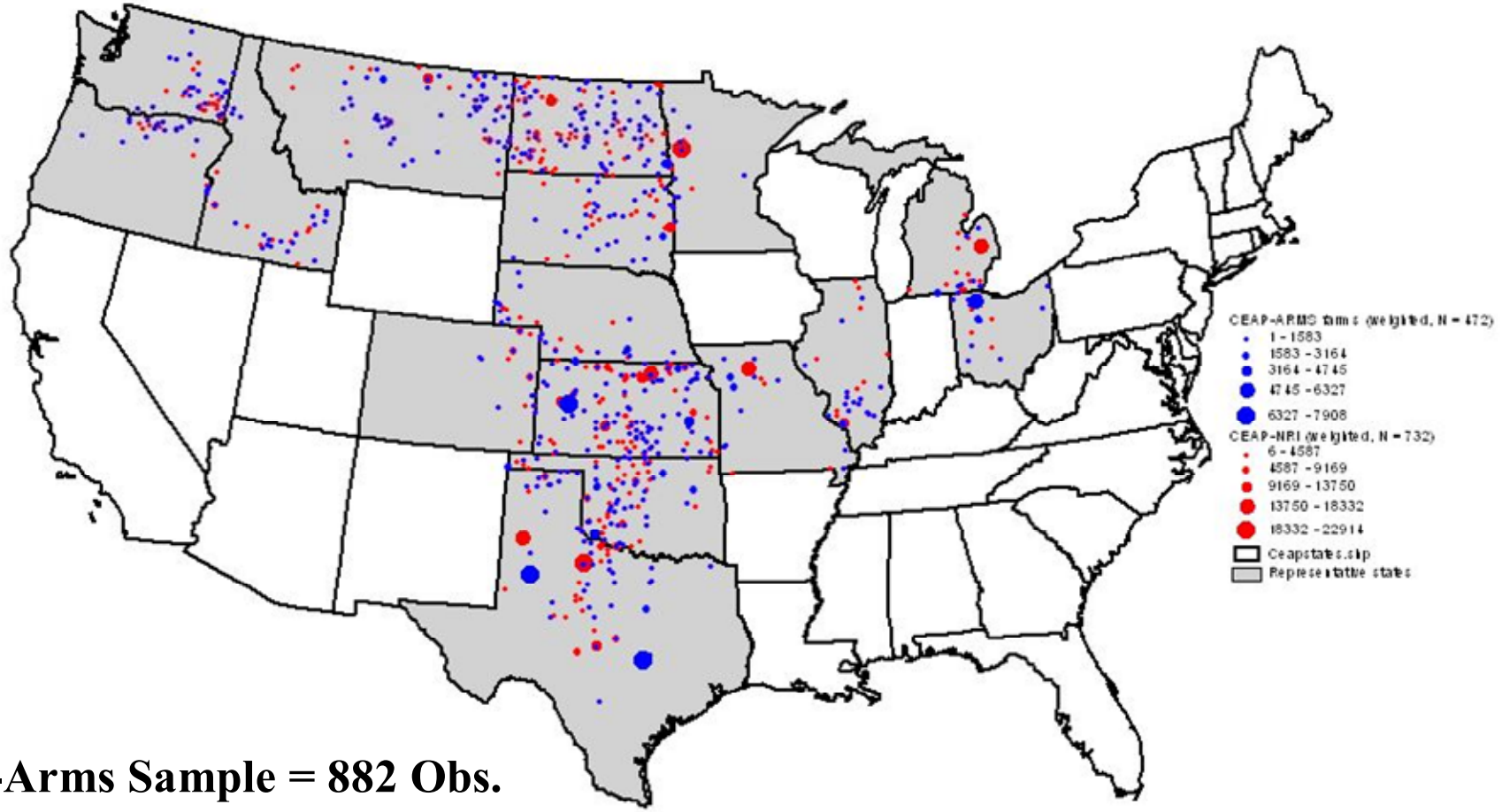


Land-Unit Based Sample (Watershed-Level Weights)

Field/Farm Based Sample (State-Level Crop Weights)

CEAP-ARMS survey farms

2004 Wheat (16 States)



Ceap-Arms Sample = 882 Obs.

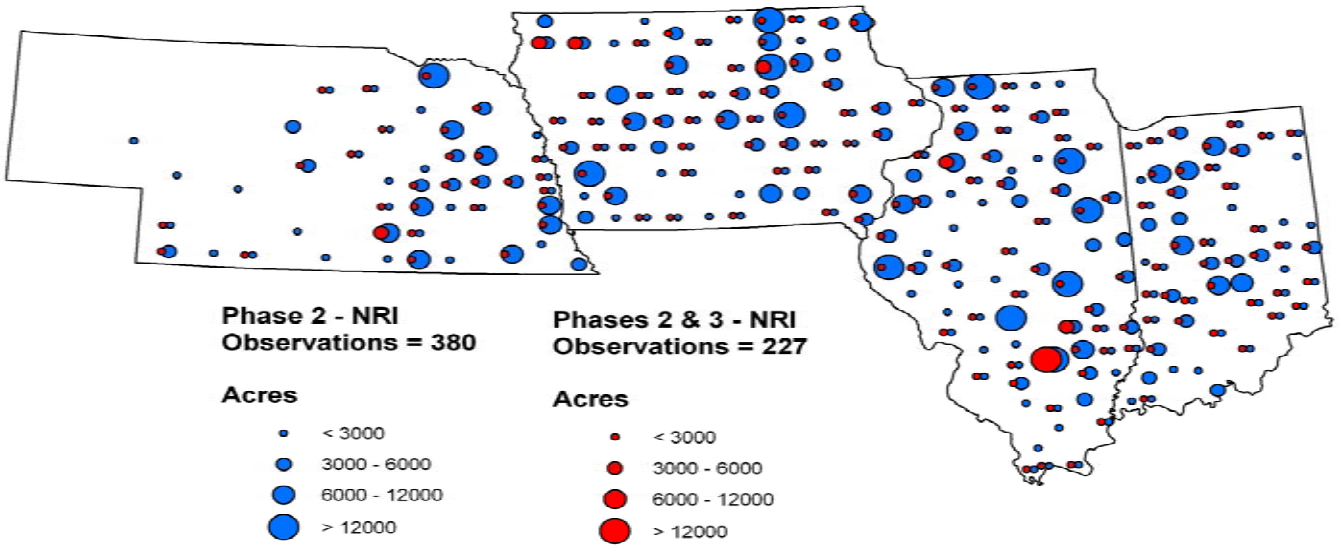
Integrated Ph. II / NRI (field level) = 732 Obs.

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

Economic Research Service, USDA

Roots in Agriculture, Future in the World

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.

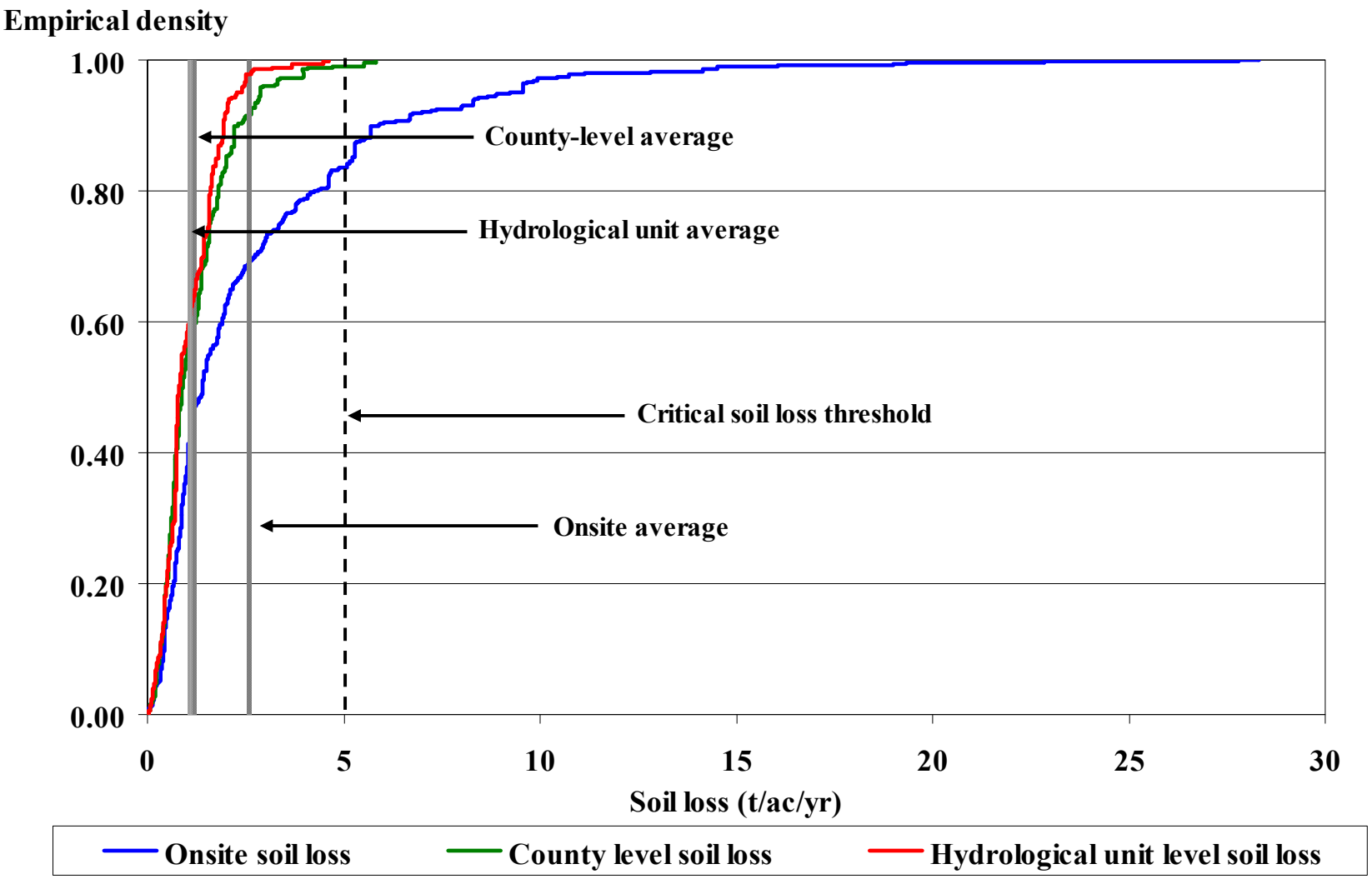
Integrated Survey Data Adds Value to Conservation Policy Analysis

- **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.**

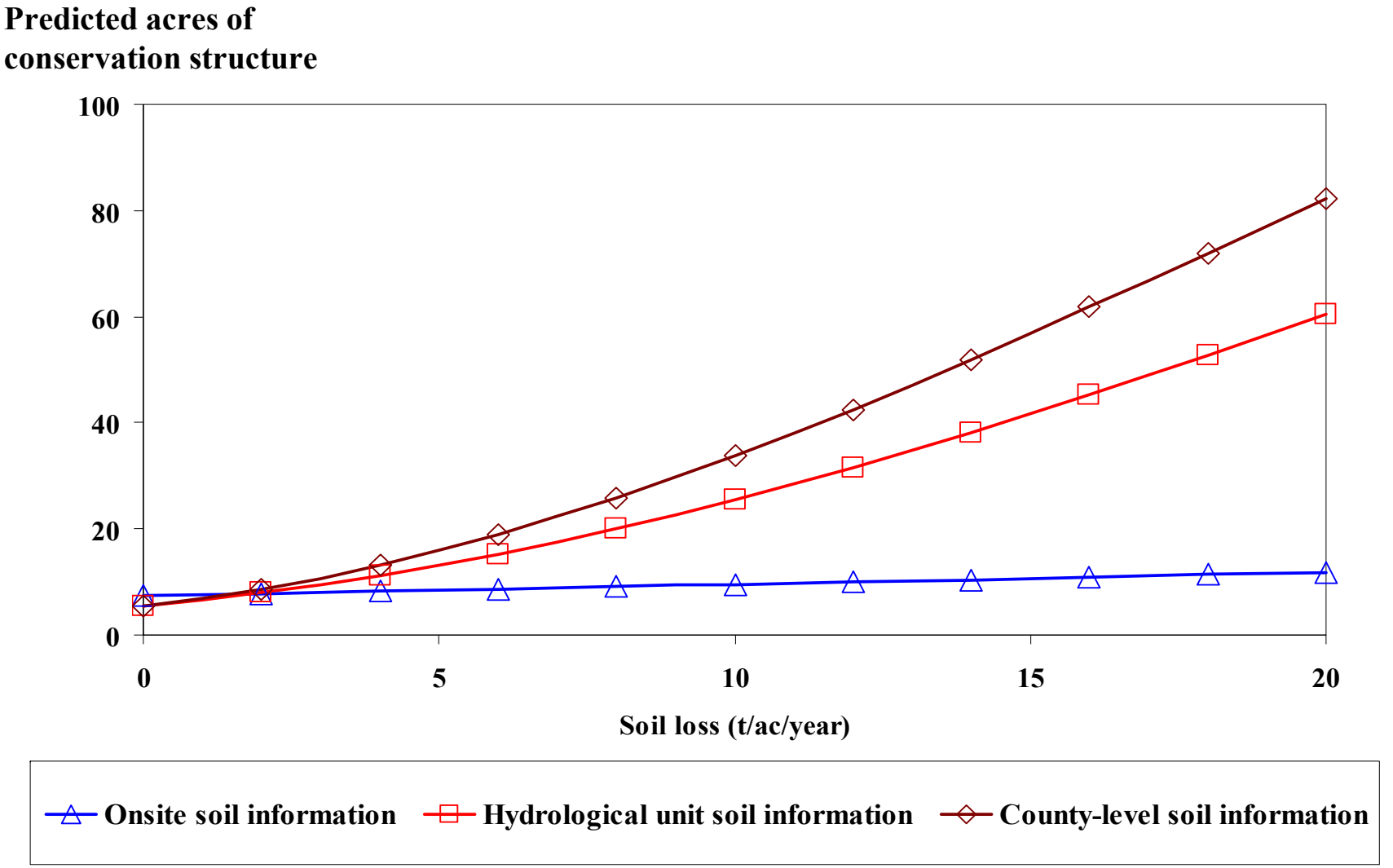
Lambert, D., G. D. Schaible, R. Johansson, and U. Vasavada. ***The Value of Integrated CEAP-ARMS Survey Data in Conservation Program Analysis*****, Journal of Soil & Water Conservation, Vol. 62, No. 1, 2007: 1-10.**

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.



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 structurres 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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