The Agricultural Resource Management Survey and the USDA Costs and Returns Estimation Program

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Overview of the CAR Estimation Program

• National and regional accounts for 15 commodities from 1975 to 2000

• Based on data from ARMS commodity surveys done every 5-8 years on a rotating basis

• Estimates between surveys are updates based on price, acreage, and production changes

• Methods for CAR estimation conform to recommendations of the AAEA Task Force

• Survey year estimates developed at the farm-level
CAR Data Collection in the ARMS

• Example of 2000 ARMS

Phase I
- Screening sample

Phase II
- Rice Production Practices & Costs
- Sugarbeet Production Practices & Costs

Phase III
- Farm Costs and Returns
- Dairy Production Practices and Costs and Returns
- Rice Costs and Returns
- Sugarbeet Costs and Returns
The Farm-Level Approach to CAR Estimation

- CAR estimates for every farm in the ARMS data
- Variation in CAR estimates can be measured
- Facilitates analysis of the ARMS and CAR data
- Example:

  Farrow-to-finish production costs per cwt gain, 1998

  Mean = $43.56
  CV = 2.28
  CI$_{95}$ = $41.43 - $45.69
Developing Farm-Level CAR Estimates

Legend
- Data Files
- Programs

ARMS phase 2
(router)

Setup

Output

Acreage & Production

Operating Costs

Machinery Costs

Irrigation Costs

Overhead Costs

Summary

ARMS & CAR data

Quality Control

Output 1

Output 2

Output 3

Output 4

Output 5

Estimates & Research

Data Files

Programs
Input and Output of the Machinery Cost Program

**Inputs**
- ARMS field ops
- Economic parameters
- Technical parameters
- Machinery prices

**Outputs**
- Individual machine costs
- Farm machine costs
Quality Control

- Survey responses are evaluated for completeness and consistency

- Data edited at:
  1. NASS state field offices
  2. ERS
Data Products from the CAR Estimation Program

1-Phase 2 data file with enterprise:
   • input use
   • production practices
   • costs and returns

2-Phase 3 data file with farm:
   • income and expenses
   • assets and debt
   • business and operator characteristics
   • farm household characteristics

3-Link between phase 2 and phase 3 data
Research Applications of the Data

- Technology Adoption Decisions in Dairy Production and the Role of Herd Expansion
- Land Tenure and the Adoption of Conservation Practices
- Genetically Engineered Crops for Pest Management in U.S. Agriculture
- Pest Management in U.S. Agriculture
- Factors Contributing to Earnings Success of Cash Grain Farms
- An Analysis of Risk Premia in U.S. Farm-Level Interest Rates
Accessing the Data

• Complete project outline with description, objectives, and data needs and planned uses

• Project outline is evaluated according to the USDA mission and data adequacy

• Sign formal agreements on data use

• Access provided at ERS or NASS state statistical office

• For more information contact Merritt Padgitt, mpadgitt@ers.usda.gov