

USDA Resource Surveys and Data Inventory

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USDA maintains databases that help enhance knowledge about the Nation's agricultural resources. This appendix inventories the major databases, including many used in AREI. Most of these databases are confidential, with only summarized estimates publicly available. Special access can be granted for qualified researchers.

Agricultural Resource Management Survey (ARMS)

The annual Agricultural Resource Management Survey (ARMS) is USDA's primary source of information on the production practices, resource use, financial condition, and economic well-being of U.S. farm households. Summarized ARMS estimates are available on the ERS website in a dynamic, technologically advanced, and easy-to-use web-based delivery tool. The four major areas covered are Crop Production Practices, Commodity Costs of Production, Farm Business Structure and Finance, and Farm Households. Starting with the 2003 ARMS, a greatly expanded sample allows detailed data analysis of the top 15 agricultural producing States. An online ARMS briefing room houses the latest ARMS-based publications and estimates.

Estimates from ARMS data are essential to USDA, congressional, administration, and industry decisionmakers when weighing alternative policies and programs that touch the farm sector or affect farm families. Sponsored jointly by ERS and NASS, ARMS is the only national survey that provides observations of commodity-specific, field-level farm practices; the economics of the farm business operating the field (or dairy herd, poultry house, etc.); and the characteristics of the U.S. farm household.

ARMS data underpin USDA's annual estimates of net farm income, subsequently provided to the Bureau of Economic Analysis for estimating gross domestic product and personal income. ARMS fulfills a congressional mandate that USDA provide annual cost-of-production estimates for commodities covered under farm support legislation. ARMS also provides data regarding chemical use on field crops as required under environmental and food safety legislation.

ARMS is conducted in three phases each year. A screening phase, in June-August, collects general farm data on crops grown, livestock produced, and farm sales. These data are used to identify farms to be contacted for Phases II and III. Phase II, conducted in October-December, collects data associated with agricultural production practices, resource and input use, and production. Phase III, in February-April, gathers data on farm income,

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expenditures, and cost of production for specific commodities and on the financial condition of farms. The ARMS is conducted mostly by personal enumeration of farmers—a self-enumerated mail-in version started in 2003 for the expanded sampling in the top 15 agricultural States. A complex multiframe, stratified sampling procedure is applied. The results are weighted and aggregated to develop State, regional, and national estimates.

ARMS Phase II

Crop Production Practices and predecessor surveys were conducted annually from 1964 through 2004 by USDA's NASS with funding from ERS. In 1996, the annual Cropping Practices Survey was merged into ARMS. Phase II of ARMS is USDA's primary source of information about the current status and trends in crop production practices for several large-acreage field crops (corn, soybeans, wheat, and cotton). This phase also obtains data on U.S. farmers' agricultural resource use, as well as data to assess potential environmental impacts of crop production practices.

Tailored Phase II reports going back to 1996 are available on the ERS ARMS web tool. ARMS Phase II gathers data from randomly selected acres of a specified crop. Farm operators are asked to provide field-level information on all fertilizer, pest, nutrient, and crop residue treatments, all tillage operations prior to planting, and data on other inputs and cultural practices. Data can be summarized by crop, year, ERS Farm Resource Region, irrigation system, previous crop, and tillage system. The operator also identifies whether the field had been designated as highly erodible land (HEL) by USDA's Natural Resources Conservation Service and whether the farm participated in farm price and income support programs. All Phase II respondents are asked to complete a Phase III farm and household financial survey linking cropping practices to financial performance.

The Farm Costs and Returns Survey (FCRS) was the main precursor to ARMS and was conducted annually from 1985 to 1995, with funding and support from NASS and ERS. ARMS was developed by combining the former Cropping Practices Survey (CPS), the Farm Costs and Returns Survey (FCRS), and the commodity cost of production surveys. The FCRS was conducted to gather information on the financial situation of farm and ranch businesses, the costs of producing various crop and livestock commodities, and the characteristics and financial situations of farm operators and their households.

Chemical Use Surveys

Chemical Use Surveys were initially funded under the 1989 President's Food Safety Initiative. Fruit and vegetable crops are the primary target of the survey program, with even-year surveys to cover vegetables and odd-year surveys to cover fruits. In each year, certain commodities are targeted to obtain more comprehensive information on management practices and costs, with recent emphasis on Integrated Pest Management and organic production. The surveys are conducted by NASS using personal enumeration of a stratified systematic sample of commercial growers. The surveys

have gathered data on pesticide use for most commercial production of fruits and vegetables in the United States (see AREI Chapters 4.3 and 4.9).

Census of Agriculture

The Census of Agriculture is conducted every 5 years, with the most recent in 2002. In 1996, responsibility for the Census of Agriculture was transferred from the U.S. Department of Commerce to USDA's National Agricultural Statistics Service (NASS). The Census attempts to be a complete enumeration of the general characteristics of all agricultural operations. However, it uses a random sampling procedure to estimate a wide variety of financial and operator characteristics. The Census of Agriculture and the ARMS survey overlap in census years. In these years, ARMS questionnaires are adjusted so that a farmer responding to the ARMS meets all the obligations of the Census.

Farm and Ranch Irrigation Survey (FRIS)

FRIS is a follow-on survey to the Census of Agriculture. FRIS provides data about irrigated agriculture by State and by Water Resource Area. All producers who report irrigation in the Census are eligible to receive a FRIS questionnaire, though the survey does not include irrigation on horticultural specialty, institutional, experimental, research, and Indian reservation farms. Data were collected in 1979, 1984, 1988, 1994, 1998, and 2003. Responsibility for FRIS and the Census of Agriculture was transferred to USDA from the Department of Commerce's Bureau of Census starting in 1997. The survey is based on a stratified, random sample of irrigators, and then adjusted to represent all eligible irrigators. The FRIS data are collected to be statistically reliable for the conterminous United States and within each of the 18 major Water Resource Areas. Data are collected on irrigation water sources, costs, energy use, maintenance of equipment, application technologies and frequency, crop yields, water conservation activities, and water management practices (see Chapter 4.6).

National Resources Inventory (NRI)

NRI is a statistical survey of natural resource conditions, land use, and trends on nonfederal land. The NRI was conducted by USDA-NRCS field staff every 5 years during 1977-97, but is now conducted annually. Transition to a fully implemented annual NRI is taking place over several years. Information is collected on the status, condition, and trends of land, soil, water, and other resources on the Nation's land (including all States and territories except Alaska). Data for the 2003 NRI were collected from more than 800,000 sample locations and are statistically reliable for national, regional, State, and substate analysis. The 2003 NRI provided a nationally consistent data base that was constructed specifically to estimate trends for natural resources from 1982 to 2003 (see AREI Chapters 1.1, 2.3, and 4.2).

Conservation Effects Assessment Project (CEAP)

CEAP is a USDA effort conducted by NRCS and NASS designed to assess the environmental effects of the 2002 Farm Security Act conservation programs. It is based on NRI sample points and examines nutrient, manure, pest management, buffer system, tillage, irrigation, and drainage practices as well as wetland protection and restoration. CEAP provides a link between farm production choices and NRI environmental data. An additional pilot survey integrated the ARMS and CEAP surveys for wheat farms into a single instrument, CEAP-ARMS, for the 2004 and 2005 calendar years. For the first time, an integrated USDA survey will allow data links between operator household/farm financial characteristics and farmers' conservation practice/environmental performance data.

Conservation Compliance Status Review

USDA's Natural Resources Conservation Service conducts status reviews of tracts determined to be highly erodible land (HEL), using a 3-percent random sample. The sample is statistically reliable at the State level for States with large HEL acreage and with high participation in USDA programs. Each tract in the sample was visited to determine the extent of compliance with the HEL provisions of the 1985 and subsequent Farm Acts. The review results were aggregated to State, regional, and national estimates, housed in the Compliance Reviews Database System. In 2000, the FSA data collection process was revamped to provide a nationally uniform means of collecting, maintaining, analyzing, and reporting compliance review data (see Chapter 5.3).

Conservation Reserve Program (CRP) Contract Data

USDA's Farm Service Agency (FSA) develops and maintains data on all tracts enrolled in the CRP, based on information provided by program participants and observations by FSA during onsite inspections. This data set includes information on the type of contract, location, acreage enrolled, land capability class and subclass, rental rate paid, average soil-specific rental rate, and cost sharing (see Chapter 5.2).

Crop Residue Management (CRM) Survey

The CRM survey was conducted by the Conservation Technology Information Center (CTIC) in 1998, 2000, 2002, and 2004 to provide State and national statistics on various conservation tillage systems. CTIC is a division of the National Association of Conservation Districts and is administered by industry, government agencies, commodity organizations, and growers. The CRM survey provides estimates on five different tillage systems for field crops: no-till, mulch till, ridge till, reduced till (15-30 percent residue), and conventional till (less than 15 percent residue). Local directors of USDA program agencies and others knowledgeable about local

residue management practices complete the survey each summer as a group effort. These local judgments are summarized to provide State, regional, and national estimates. In addition, several States conduct statistically derived transects to survey crop residue levels (see Chapter 4.2).

Current Research Information System (CRIS)

CRIS, a research information database, maintains data on all agricultural and forestry research funded by USDA, including research by problem area, subject, field of science, funding, objectives, approach, performing organizations, and responsible individuals. USDA's Agricultural Research Service (ARS) maintains the system (see Chapter 3.2).

June Agricultural Survey

The largest single sample-based survey NASS conducts each year is the multiple-frame June Agricultural Survey (JAS). The JAS and other minor annual surveys focus on agricultural production for major crops, livestock, and associated inventories. These surveys collect farm-level data to produce State and U.S. crop forecasts and estimates published in the NASS Agricultural Statistics Board reports. NASS produces approximately 400 reports each year, with information released on a weekly, monthly, quarterly, or annual basis depending on the commodity. The Agricultural Land Values Survey (ALVS) was combined into this NASS series in 1994 when questions on land values and cash rents were added (see Chapter 1.2).

Area Studies Project

USDA's Area Studies Project was a trial survey designed to characterize the extent of adoption of nutrient, pest, soil, and water management practices and to assess the factors that affect adoption for a wide range of management strategies across different natural resource regions. A detailed field-level survey was administered to farmers in 12 watersheds to gather data on agricultural practices, input use, and natural resource characteristics associated with farming activities. Surveys conducted in each area between 1991 and 1993 collected detailed information on production technologies, cropping systems, and agricultural practices at both the field and whole-farm level. The survey sample points corresponded with National Resource Inventory (NRI) sample points, for which NRCS had collected soil, water, and other natural resource data. Recent CEAP-ARMS and ARMS supplanted these data (see AREI Chapters 4.2, 4.3, 4.4, and 4.6).

Other Data

Data on real property taxes (State and local) on farm and ranch lands and buildings were collected annually through a nationwide mail survey of over 4,000 taxing officials until the survey was discontinued in 1995. The survey, conducted by ERS, provided tax and acreage information on about 42,000 parcels of farm and ranch lands in the 48 contiguous States. Internal Revenue Service databases of taxpayers that file Schedule F provide other tax information.

Data on foreign ownership of U.S. agricultural land are collected under the auspices of the Agricultural Foreign Investment Disclosure Act of 1978 (AFIDA). This act requires all foreign owners of U.S. agricultural land to report their holdings to the Secretary of Agriculture. Acquisitions and dispositions of such land by foreign owners are to be reported as they occur. This provides USDA with a continuing inventory of such ownership, which is netted out at the end of each calendar year and reported to the President and Congress.

Cropping Practices Survey— see ARMS.

Farm Costs and Returns Survey— see ARMS.

Agricultural Land Values Survey— see June Agricultural Survey.