

Introduction

GENERAL INFORMATION

The 1978 Census of Agriculture was the 21st such enumeration in United States history. Agricultural censuses are normally carried out at 5-year intervals, but the intercensal period following the 1974 census was shortened to 4 years, and will again be 4 years after the 1978 enumeration, so that the reference years for the 22nd agricultural census and the other 1982 economic censuses will coincide.

The basic unit for which data are collected in the agriculture census is the individual farm (or, in the case of the census of agricultural services and various specialized data collection operations, the individual operating unit). Farm operators are asked to provide information on land in farms and land use, agricultural production and sales, inventories and sales of livestock and poultry, use of fertilizers and chemicals, ownership of machinery and equipment, selected operating expenses, business organization of the farm, and so on.

USES OF AGRICULTURE CENSUS DATA

Data from the census of agriculture are valuable not only to farm operators, but also to the entire agribusiness sector of our economy. Census data, as well as current sample estimates derived from or based on census benchmark data, are widely used for planning purposes by manufacturers servicing agricultural operations, and by businesses involved in the transportation, processing, or distribution of agricultural products to the consumer. While some of the same kinds of information are collected by other Federal agencies in periodic or occasional sample surveys, data from the census are the only statistics on agriculture that are comparable, county by county and State by State, on a nationwide basis, and classifying farms by size, tenure, type of organization, market value of farm products sold, and type of farm enterprise.

The census data are used by administrators and legislative bodies at all levels of government in developing farm and rural programs and in analyzing the results of such programs. The census provides a county-level data base for decisionmaking by public and private organizations; comprises a body of benchmark figures used in adjusting the various statistical series maintained by the U.S. Department of Agriculture; and establishes a framework for research projects conducted by universities, government agencies, farm organizations, agricultural

management organizations, and others. The data permit analysis of changes in many facets of agriculture (changing technology, increased mechanization, capital structure, etc.) as well as within the agricultural economy as a whole. Thus the accuracy and completeness of each agriculture census is important, both to the individual farmer who provides the information needed, and to a wide variety of other data users who must rely on these statistics for a clear view of an essential part of the American economy.

In the past, few farm operators have knowingly made direct use of the agriculture census data—their benefits have accrued from the publication of these statistics by intermediate sources, and from the use of the information by private entrepreneurs and government planners. In an effort to increase awareness of the value of census data, an item was included on the 1978 Census of Agriculture report form inviting respondents to ask for the major census results for their county. Those requesting one were sent a two-page summary of these statistics as soon as the preliminary results for their county were available. The summary enabled each operator to compare his or her individual agricultural activities with county totals and averages.

LEGAL AUTHORITY

The census of agriculture is taken under the provisions of title 13, U.S. Code, Census, which governs the operations of the Bureau, an agency of the U.S. Department of Commerce. Chapter 1 (Administration) of that title is concerned with administrative operations and sets forth procedures regarding the collection and treatment of data, the qualifications and duties of employees and supervisors, authorization of appropriations, etc. Most particularly, regarding the actual conduct of censuses, section 5 provides that "The Secretary [of Commerce] shall prepare schedules, and shall determine the inquiries, and the number, form, and subdivisions thereof, for the statistics, surveys, and censuses provided for in this title." Section 9(a) protects the confidentiality of the data by prohibiting (1) use of the information for any except the statistical purposes for which it is supplied, (2) publication of any data that could identify any particular individual or establishment, and (3) access to census reports by anyone except sworn Commerce Department officials and employees.

Chapter 5 (Censuses), section 142, of title 13 directs the Secretary of Commerce to conduct a census of agriculture

"... in 1979, in 1983, and in every fifth year beginning after 1983..." to take a census of irrigation and drainage in conjunction with the census of agriculture"... in 1979, in 1988, and every tenth year beginning after 1988..." and that the data collected in each census shall relate to the immediately preceding year. Section 191 of this chapter requires the inclusion in these censuses of each State, the District of Columbia, the Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and the Commonwealth of Puerto Rico, "... and, as may be determined by the Secretary with the concurrence of the Secretary of State, such other possessions and areas over which the United States exercises jurisdiction, control, or sovereignty." This latter section also prescribes the manner in which censuses may be taken of territories or areas outside the 50 States. The enumerations in Puerto Rico are conducted in accordance with special agreements made before each census with the Government of the Commonwealth. In the other outlying areas, the census data may be collected by the Governor or highest ranking Federal official, in accordance with plans approved by the Secretary of Commerce. Section 195 authorizes the Bureau to cover census topics by sampling, where appropriate.

Sections 221 and 224 of Chapter 7 (Offenses and Penalties) require respondents to supply the information requested (on penalty of a fine of \$100 for individuals or \$500 for companies, businesses, religious bodies, and other organizations), while section 214 of the same chapter prescribes the penalties (a fine of not more than \$5,000, or imprisonment for up to 5 years, or both) incurred by any employee or staff member who publishes or communicates census information, the disclosure of which is prohibited, to any but sworn Commerce employees or officers.

LEGISLATION AFFECTING 1978 CENSUS OF AGRICULTURE

The conduct of a census of agriculture for the year 1978 instead of 1979 was the result of special legislation. The great technological changes in American agricultural production, distribution, and processing and marketing practices since the end of World War II have shifted much of the process of agricultural activity between the producer and the consumer from the farm to off-farm establishments. Thus, any attempt to obtain a picture of the agricultural sector of the economy must include data from both farm and nonfarm sources. It was recognized that a more accurate "snapshot" of the Nation's economy could be provided if the economic censuses and the agriculture census data were for the same reference period (census year). Accordingly, in 1972, the Bureau suggested that the 1974 Census of Agriculture be postponed, and that the next enumeration be conducted for 1977, in conjunction with the economic censuses for that year. This proposal generated considerable opposition among agricultural data users and, after about 15 months' delay in planning, the plan to postpone the census was scrapped.

The idea of obtaining data for all the agriculture and economic censuses for the same reference period was still considered a legitimate goal, and in June 1975, a bill, H.R. 7824, was introduced in Congress to alter title 13 by having

section 142, paragraph (a) read "The Secretary shall in 1979, in 1983, and every fifth year beginning after 1983, take a census of agriculture [covering the preceding calendar year]." This wording meant that (1) the next two intercensal periods would be only 4 years long, before the 5-year cycle was resumed; (2) the agriculture census for 1982, and any following, could be taken in conjunction with the economic censuses; and (3) there would be no break in the cycle of available agriculture census data sets, as would have been the case if a census had been postponed or cancelled. After hearings in September 1975, H.R. 7824 was approved and signed into law in March 1976 as Public Law 94-229.

In October 1976, a somewhat more extensive modification of title 13 was undertaken when H.R. 11337 was signed and became Public Law 94-521, sometimes known as the Mid-Decade Census Law since its major provisions concerned the establishment of mid-decade censuses of population and housing. Besides directing the taking of these new censuses, the act made a number of other alterations to various sections of the title, two of which had direct effects on the census of agriculture: Section 191, paragraph (b) was changed to specifically include the Commonwealth of the Northern Mariana Islands (as distinct from the Trust Territory of the Pacific Islands); while sections 221, 224, 225, and 241 were reworded to remove the threat of jail penalties for persons refusing to answer census inquiries. (The proviso of fines for nonresponse was retained, as well as the punishment for false information and wrongful disclosure.)

A number of bills considered by Congress during the intercensal period preceding the 1978 enumeration did not become law but had substantial effect on the Bureau's plans and actions, in that they demonstrated the degree of public interest in certain areas of census operations. This was perhaps most apparent in the area of the reduction of respondent burden, where a number of bills, notably H.R. 14830 (submitted July 1976) and H.R. 7012 (May 1977), called for substantial reductions in respondent burden in the agricultural enumeration (50 and 40 percent, respectively, although no base against which these reductions were to be measured was identified). The Bureau opposed both proposals on the grounds that the reduction of respondent burden by some arbitrary figure would undermine the validity and utility of the data, but the bills served to reinforce the Bureau's own determination to reduce respondent burden to the greatest degree possible. In a like manner, H.R. 7411, intended to amend title 13 to provide for the collection and publication of data on foreign ownership of property (including farmland) in the United States, did not become law, but congressional interest in these data encouraged the Bureau to include an item on both its sample and nonsample report forms asking if any land operated by the respondent was held under foreign ownership at any time during the census year.

SCOPE AND REFERENCE DATES

General Information

The 1978 Census of Agriculture program can be divided into two parts: the census of agriculture proper, which has come to

mean the enumeration of farms; and the various enumerations or surveys of specific parts of the agricultural economy, such as the census of agricultural services or the survey of farm finance. The agriculture census program, as a whole, included the following censuses and surveys:

1978 Census of Agriculture	1979 Farm Finance Survey
1978 Census of Agricultural Services	1979 Farm and Ranch Irrigation Survey
1978 Census of Irrigation	
1978 Census of Drainage	1979 Farm Energy Survey
1979 Census of Horticultural Specialties	

Scope of 1978 Censuses

The census of agriculture traditionally is taken on an operating-unit basis, the operating unit generally being the farm. The 1978 census involved the enumeration of all farms active in agricultural production during the census year in the 50 States, Puerto Rico, Guam, and the Virgin Islands. Censuses of agriculture in American Samoa and the Commonwealth of the Northern Mariana Islands were carried out as adjuncts to the 1980 Census of Population and Housing, but the agricultural data collected were published as part of the 1978 Census of Agriculture publication program. Data were collected on—

Acreage	Foreign ownership of farmland in 1978
Crops	Use of fertilizers, pesticides, and other chemicals
Fruit and nut production	Selected production expenditures
Vegetables	Expenditures for energy
Nursery and greenhouse products	Machinery and equipment
Value of sales	Market value of land and buildings
Land use	
Irrigation	
Type of organization	
Livestock and poultry	
Animal specialties	
Characteristics and occupation of operator	

The census of agricultural services is taken to provide statistics on the rapidly growing investment in capital and labor input to agricultural production that is shifting from the farm to off-farm entrepreneurs. For individuals and establishments engaged in agricultural services as defined by the 1972 *Standard Industrial Classification (SIC) Manual*, the 1978 census collected data on—

Gross receipts	Changes in value of depreciable assets
Payroll and number of employees	Expenditures for energy
Supplemental labor costs	
Capital expenditures	

The decennial census of irrigation collects data primarily from organizations supplying water to farms and ranches, although a limited amount of irrigation information is obtained from farm operators on the agriculture census form. The 1978 Census of Irrigation used two data collection forms (for single-basin and multi-basin organizations) and collected data on—

Type of organization	New capital investment, and indebtedness
Source of water	Cost of operation and maintenance
Water users and acres served	Irrigation revenue
Irrigation facilities (diversion dams, wells, canals, etc.)	Diversion and delivery points
Irrigation water storage reservoirs	
Measurement of water	

In 1978, a limited amount of data were collected from drainage districts in the 1977 Census of Governments, and these were substituted for drainage project data as previously collected. The 1978 Census of Drainage proper compiled data on—

Number of drainage districts	Full-time and part-time employees
Revenues received and expenditures	
Long-term indebtedness	

The recent diminution of new drainage projects has resulted in a decline in the need for drainage project statistics, and during the review and rejustification of subject matter that accompanied the development of plans for the 1978 census, the Bureau was unable to find any substantial interest in agricultural drainage project statistics by data users except on the part of the Soil Conservation Service (SCS), U.S. Department of Agriculture. Because of their participation in the planning and engineering of drainage works both public and private, the county and State SCS offices had sufficient drainage records and other information to meet the limited data needs.

For the 1978 Census of Drainage, it was decided to utilize SCS drainage records as the principal source of statistics in developing county and State estimates on the acreage of agricultural land benefited by artificial drainage.

The 1979 horticulture census was taken in cooperation with the U.S. Department of Agriculture in those States where USDA conducted its annual floriculture survey. The USDA collected data for all the establishments on its own mailing list and, after aggregating the floriculture data, released the individual report forms to the Bureau's Agriculture Division. Data for establishments on the Census list but not on the USDA list were collected by the Bureau under the mandatory provisions of title 13, United States Code, and thus were not shared with USDA. In the 1979 Census of Horticultural Specialties data were collected on—

Greenhouse products	Equipment
Nursery products	Irrigation
Mushrooms	Sales and purchases
Sod	Expenses
Land used	Labor
Structures	

Scope of 1978 Program Sample Surveys

Follow-on sample surveys to obtain more detailed information than is feasible to collect from all farm operators in the census have been conducted since before the turn of the century. For the 1978 census, surveys of farm finance, on-farm irrigation, and energy use on farms were part of the program. The 1979 Farm Finance Survey collected data on—

Land ownership	Income and expenses from farm-related sources
Value of land and buildings	Taxes
Rent information	Assets
Purchases, expenditures, and credit used	Off-farm income and off-farm work
Debts as of December 31, 1979	Landlord characteristics
Value of farm products sold	
Production contracts	

The 1979 Farm and Ranch Irrigation Survey was taken to supply up-to-date statistical measures relating to irrigation water

use on the Nation's farms and ranches. Data were collected on—

Land in farms	Selected irrigation facilities
Land use	Capital expenditures, maintenance and repair costs
Irrigated and nonirrigated crop yields	Energy use for irrigation
Method of irrigation	Irrigation used for secondary purposes
Quantity of water used	

The 1979 Farm Energy Survey was taken in response to the demand for specific energy information, basic to energy planning, such as for possible priority allocation, stimulation of the development and use of alternate energy sources, seasonal needs, etc. The 1979 Farm Energy Survey collected data on—

Acres operated, by ownership	Inventory, size, and use of wheel tractors, motor trucks, combines, automobiles, and other self-propelled equipment
Livestock and crops and value of sales	Irrigation pumps
Energy expenditures and usage	Electric motors over 1 horsepower
Inventories and capacity of on-farm storage	Crop drying or curing facilities
Type of delivery service	Nonresidential farm buildings heated or cooled
Customwork by others	
Customwork for others	

Reference Dates

The reference dates for the 1978 Census of Agriculture (i.e., the period(s) for which data were requested) varied, depending upon the area involved and the information requested. For the 50 States, inventory data were obtained as of December 31, 1978, and all other data (except for a few crops, such as citrus, for which data were collected for the production year) were requested for calendar year 1978. In Puerto Rico, inventory data were collected as of July 1, 1978, while production information was requested for the 12-month period from July 1, 1977 to June 30, 1978. In the outlying areas, production data for Guam were collected for the calendar year 1977 and inventory data as of the date of enumeration (April 15-May 31, 1978); while in the Virgin Islands, production data were requested for the 12 months preceding the enumeration and inventory items as of the date of enumeration (June 28-July 31, 1978). In American Samoa and the Northern Mariana Islands, the census was carried out in 1980, concurrently with the population and housing census, and all data were requested for calendar year 1979.

DEFINITION OF A FARM

A definition of a farm for census purposes was first established for the 1850 enumeration. The definition has been altered a number of times since, but the essential features of every one used have been that (1) the land involved be operated under the day-to-day control of one person or management (partnership, corporation, etc.), and (2) that the land be used for or connected with agricultural operations. Thus, the enumeration and farm count have been on an operating-unit rather than on a land-ownership basis. Further, the tracts of land operated as a single farm did not have to be contiguous.

The key, of course, has been whether or not the land was involved in agricultural operations, which naturally requires a definition (again, for census purposes) of what constitutes

“agricultural operations.” Briefly, these include the production of livestock, poultry, and animal specialties and their products, and the production of crops, including fruits, greenhouse, and nursery products. Farms may vary in size from hobby operations barely meeting the minimum definition criteria to diversified businesses including thousands of acres of cropland, extensive orchards, livestock range operations, feedlots, and dairy and poultry operations.

The farm definition used in the censuses of 1850 and 1860 had no acreage requirement, but set a lower limit of \$100 in value of agricultural products. Since that time, acreage and dollar value of production limits have been added to the definition, changed, or removed. In the censuses of 1900-1920 no minimum acreages or values of production were set, provided the operation involved the continuous services of at least one person. Usually, however, the census has required that a farm have a minimum acreage (though the acres need not all be under cultivation) varying from 3 to 10, and a minimum total value of production sold (TVP), varying from \$100 to \$500.

The definition used for the 1959 through 1969 censuses counted as a farm any place that (1) contained 10 acres or more and had, or would normally have, sales of \$50, or (2) had less than 10 acres, but had, or would normally have, sales of \$250 or more. If values of sales were not reported or were obviously incorrect, average prices were applied to crops, livestock, and livestock products in order to estimate sales.

The longer a definition goes unchanged, the more necessary data users perceive a change in the minimum criteria for including an agricultural operation in the census total to be. During the planning of both the 1969 and 1974 censuses, the Bureau became aware of increasing sentiment among data users that some change in the farm definition was necessary. Although the census law (title 13, United States Code) leaves the definition of a farm for census purposes to the discretion of the Secretary of Commerce, it was the Bureau's position that, as a neutral data-collection agency (i.e., without responsibility for the administration of any agricultural program), it should follow the lead of the data-user community, but that in the event of a change in definition, data would be collected and published to show the effect of the change. Thus, data collection and processing plans for the 1974 census were made in terms of the existing (1959) definition. Tabulation programs, however, were constructed to permit tabulation by either the 1959 definition or a new one.

On August 12, 1975, the Departments of Agriculture and Commerce, with the concurrence of the Office of Management and Budget, announced a change in the official definition of a “farm.” The traditional operating-unit concept was retained, but the minimum value of sales was increased and the acreage criteria were eliminated. The official census definition of a farm became “all land on which agricultural operations were conducted at any time during the census year under the day-to-day control of an individual management and from which \$1,000 or more of agricultural products were sold, or normally would have been sold, during the census year.” The Department of Commerce announcement stated that the 1974 census publications would show some data for both the old and the new definitions.

Considerable opposition to the use of the new definition was expressed by some members of Congress, and Public Law 94-229 (signed March 15, 1976) included a provision (section 2) requiring that any data published from the 1974 Census of Agriculture prior to July 1, 1976, be in accordance with the 1959-1969 definition. The Departments of Agriculture and Commerce and many other interested parties considered the original decision to change the farm definition justified in view of the significant rise in price levels and other changes in the structure of agricultural operations. However, since the publication of the county preliminary reports, issued during the period April through December 1976, began while section 2 of Public Law 94-229 was in effect, it was decided that the entire series of county preliminary reports should be tabulated and published under the 1959 definition.

The enacted prohibition expired without renewal, and in December 1976, the Secretary of Commerce directed the use of the "new" farm definition for the remaining 1974 census publications and in future censuses. Thus, all reports except the preliminary reports were published on the basis of the "new" definition. The farm definition for the 1978 Census of Agriculture encompasses any agricultural operation having \$1,000 or more in actual, or potential, sales of agricultural products in 1978.

ORGANIZATION OF BUREAU OF THE CENSUS

During most of the 1978 Census of Agriculture, the Bureau of the Census was organized under a Director, a Deputy Director, and five Associate Directors responsible for demographic fields, economic fields, administration and field operations, statistical standards and methodology, and electronic data processing. (Administration and field operations were placed under separate Associate Directors in July 1979, raising the number of Associate Directors to six.) Five Assistant Directors had oversight of demographic censuses, economic and agriculture censuses, administration, field operations, and electronic data-processing (EDP) operations.

Aside from the Director's staff, the Bureau consisted of several kinds of functional divisions: (1) subject matter (agriculture, population, business, etc.), (2) data collection and processing, (3) statistical services (including mapping and geographic presentation of data), and (4) administrative services

(personnel, finance, etc.). In addition, the Public Information Office was responsible for publicizing the Bureau's censuses and surveys; the Data User Services Division had the principal task of servicing data users' needs and included the Census History Staff, which prepared this procedural history (subject to the review and approval of the Chief, Agriculture Division).

The 1978 Census of Agriculture was conducted by the Agriculture Division under the general supervision of the Associate Director for Economic Fields and the Assistant Director for Economic and Agriculture Censuses. Other divisions and offices participated in the census operation or in the processing and publication phase of the program, most notably the Field Division (which operated the Bureau's regional offices and trained and supervised the field interview staffs), the Data Preparation Division (which handled mailing, much of the telephone followup operation, and receipt, check-in, and clerical processing of the census report forms), and the various divisions concerned with data processing and publication services. A list of the key personnel and divisions that took part in the 1978 Census of Agriculture is presented in appendix B.

EXPENDITURES

The planning and conduct of the 1978 Census of Agriculture extended over a period of several years. The initial planning was begun in 1976, before work on the 1974 enumeration was completed, and the first funds specifically earmarked for the 1978 census operation were for fiscal year (FY) 1976. Extensive preparation of the mailing list, expansion of the census program to include censuses of irrigation and horticultural specialties, an enumerative area sample in each of the contiguous 48 States to improve coverage in the census, the addition of several follow-on sample surveys, and inflation all contributed to increase the total cost of the 1978 census as compared to previous censuses. Total expenditures for the 1978 Census of Agriculture were \$50,497,000. Expenditures for each fiscal year were as follows:

Fiscal year	Expenditures
Total	\$50,497,000
1976	84,000
1977	2,563,000
1978	11,601,000
1979	21,480,000
1980	9,118,000
1981	5,651,000