

Chapter 10. The 1969 Census of Agricultural Services

GENERAL INFORMATION

Need for the Agricultural Services Data

With the 1969 Census of Agriculture, the Census Bureau entered a totally new field—the collection of data on agricultural services from establishments which provide these services. This special census evolved because of a need for data covering Standard Industrial Classification (SIC) Major Group 07. This classification includes establishments primarily supplying agricultural services on a fee or contract basis, such as cotton ginning; grist milling; corn shelling; hay baling; grain combining; picking, sorting, grading, and packing of fruits and vegetables; crop dusting and spraying; and plowing. Also included are animal husbandry services such as veterinary services, animal breeding, and artificial insemination; horticultural services; and commercial hunting, trapping, and game propagation.

It had been generally accepted in earlier years that most of these agricultural services were provided by the farmer himself; he did his own fertilizing, cultivating, planting, and harvesting. During the last few decades, however, agricultural services have become an increasingly specialized, separate industry, closely involved with farm production. The vast technological and scientific changes in agriculture and the rapid growth of "agribusiness" have been directly related to the development of the agricultural services industry.

Data on these services are increasingly sought by business and agricultural enterprises as well as by government agencies. A census of this industry is, therefore, essential to provide facts necessary for (1) a broader view of today's farm production, (2) a better understanding and interpretation of long-term agricultural changes and trends, and (3) a more meaningful analysis of the relationships between agriculture, agricultural services, and agribusiness. This census marks the first large-scale attempt to compile data on this industry.

Scope and Content of the Census

The agricultural services census was conducted on a mailout/mailback basis, covering each State and the District of Columbia. It was designed to cover the 1969 operations of all agricultural service establishments active at the beginning of that year.

The basic data requested on the report form covered the following subjects: For agricultural services performed in 1969, gross receipts, labor, payroll, and location; nonagricultural service activities comprising part of the total operation of the

establishment; and summary data on total annual payroll and total gross receipts. Also requested was general information pertaining to the type of organization, employer identification number, and controlling enterprise.

In addition to the data collected on agricultural service establishments, supplemental information was gathered from farm operators on receipts from and expenditures for agricultural services, in the 1969 Census of Agriculture, and on cotton ginning, as covered in the regular reports compiled each year during the ginning season.

Expenditures

Work on the census of agricultural services extended over a period of several years, from July 1968 through September 1972. The cost of the census of agricultural services was part of the total cost of the 1969 Census of Agriculture. That portion of the total cost which could be separated for the census of agricultural services amounted to approximately \$125,000. Other expenses incurred were considered part of the cost of the entire census program.

Definition of an Agricultural Service Establishment

The 1969 Census of Agricultural Services was conducted on an establishment basis. For the purposes of the census, an "agricultural service establishment" was defined as an economic unit primarily engaged in any of the detailed industries included in SIC Major Group 07. "Primarily engaged" in these activities referred to any establishment receiving (1) 50 percent or more of its gross receipts from agricultural services; or (2) primary gross receipts from agricultural services, for cases in which no one activity represented 50 percent or more of total gross receipts.

PLANNING AND DEVELOPMENT

Background

The area of agricultural services had previously been largely neglected in the Bureau of the Census programs, having been excluded from the censuses of business and of relatively minor significance in the censuses of agriculture. Beginning in 1966, discussions were held within the Bureau to determine whether it would be better to place the agricultural services census with the

agriculture or the economic censuses, considering both their scope and time limitations.

Because the *Standard Industrial Classification Manual* provides the basis for establishments or organizations covered in the census of business, it was felt that the manual's classification system might provide some guidance in deciding which major census would include the census of agricultural services. The manual is broken down into parts, divisions, and major groups, according to the type of economic activity. Agricultural services is a major group of the division covering agriculture, forestry, and fisheries, and is not a part of the division on services, which is normally covered by the economic census of special services. Therefore, it was decided that coverage of agricultural services would be more appropriately a part of the 1969 Census of Agriculture. In addition, the 1967 Census of Business was considered to be too close at hand to try to include agricultural services for the first time.

Thus the 1969 Census of Agricultural Services was conducted as part of the 1969 Census of Agriculture, the legal authorization for which is found in Title 13, United States Code, which authorizes the Secretary of Commerce to determine the number, form, and scope of the inquiries for the censuses (see chapter 1, Introduction, page 1).

Procedural Chronology

The major phases involved in taking the 1969 Census of Agricultural Services and their approximate duration were as follows:

1. Planning and development . . . July 1968 to February 1970
2. Initial mailout February 13, 1970
3. Mailout of followup form letters to nonrespondents . . March 1970 to May 1970
4. Further followup on non-respondents July 1970 to December 1970
5. Clerical edit and coding . . . September 1970 to February 1971
6. Computer edit and correction February 1971 to June 1971
7. Tabulation, final review and analysis of data, and preparation of publication text. . June 1971 to July 1972
8. Publication September 1972

Development of the A40 Report Form

The report form for the 1969 Census of Agricultural Services was developed by the Bureau of the Census in consultation with

users of the data, representatives of agricultural organizations involved with research, and other experts in the field. Selection of the inquiries was based on requests for specific items of information, recommendations of the Census Advisory Committee on Agricultural Statistics, suggestions from qualified Census Bureau staff members and representatives of other U.S. Government agencies, and results of the census of agricultural services pretest. Careful consideration was given to such factors as the availability of data from other sources, the possibility of obtaining data by methods other than a census, the accuracy of the data that might be obtained, and the need for and usefulness of the data.

The Agricultural Services Pretest

A pretest was conducted from January to June 1969 to evaluate the accuracy of the mailing list, the content and wording on the report form, and the respondent's ability to interpret and complete the report form properly. Approximately 500 establishments were asked to complete reports on their agricultural service activities during 1968.

Analysis of the pretest provided an indication of the most and least common agricultural service activities, which resulted in a more useful selection of activities to be listed on the final report form. It also provided the census staff with a limited amount of experience with the problems involved in collecting agricultural service data for the first time.

The Mailing List

The mailing list for the 1969 Census of Agricultural Services was developed to include all persons and organizations primarily engaged in performing agricultural services during 1969. This list was assembled from agriculture census records and from the records of other government agencies. Specifically, the Internal Revenue Service supplied lists of persons and organizations who filed Form 1040 Schedule C (businesses), Form 1065 (partnerships), or Form 1120S (small business corporations), and who were identified from these reports as agricultural service establishments. The Social Security Administration provided a list of employers who filed Form 943 (Employer's Annual Tax Return for Agricultural Employees) or Form 941 (Employer's Quarterly Federal Tax Return), and who employed agricultural service employees. The mailing list was completed with the addition of agricultural service establishments identified in the 1969 Census of Agriculture prec canvass of large agricultural operations. (See chapter 3, page 26, for a discussion of the prec canvass.)

The final master list was constructed by merging and unduplicating the various source lists on the basis of social security or employer identification numbers.

THE ENUMERATION

Mailout

The final mailing list contained approximately 72,000 names and addresses of establishments performing agricultural services.

On February 13, 1970, mailing packets, containing the A40 (Census of Agricultural Services) report form, a file copy to be retained by the respondent if he wished, an introductory letter, and a return envelope were sent to these establishments. A reminder card was sent out on February 20 to all names and addresses on the mailing list to encourage quick response.

Followup

After allowing a reasonable period of time for response, follow-up procedures were initiated for all nonrespondents. This followup consisted of a series of three form letters which were sent out in March, April, and May 1970 as of selected closeout dates. By the end of May, returns had been received from 83.3 percent of those on the mailing list.

During most of this followup period, additional information needed for incomplete or questionable reports was requested by mail, using either a form letter or a tailored letter. Toward the end of this period, however, these cases were resolved primarily by telephone. Enumerator followup in the field was not used. Followup cases requiring additional information were classified as "suspense" cases until the completion of the correspondence stage, at which time those that were not resolved were either supplied with estimated data and designated in scope when possible or were classified as "dead suspense" and designated out of scope. This group of out-of-scope cases amounted to about 1.6 percent of the total mailout. About 6,500 cases (9 percent) provided no response to the original mailout or to any of the followup attempts.

DATA PROCESSING

Receipt and Check-in of Returns

The initial processing step was the check-in to establish and maintain control over the receipt of all report forms and correspondence. This operation was conducted by the census staff at the Jeffersonville, Ind., office from March through June 1970. Census staff in Washington, D.C., completed the operation from July 1970 through the data-tabulation phase into late 1971. The process involved establishing identification of serial numbers of individual returns and sorting out cases with correspondence, postmaster returns (PMR's), and duplicates or multiple returns. The multiple returns and correspondence were referred to the technical assistants and professional staff in Washington for review. The PMR's were remailed to the respondents for a second attempt.

The check-in operation in Jeffersonville included the keying of serial numbers of all receipts to computer tapes, which then could be matched to the original address register to provide for the production of a delinquent list (nonrespondents) for purposes of followup and response analysis. This delinquent list was updated manually during the later check-in phase in Washington.

Manual Editing and Coding of Report Forms

The precomputer editing and coding operations were to ensure that each report form was properly and thoroughly prepared for

keying and computer processing. These operations were performed by clerks, technical assistants, and statisticians. The editing and coding tasks performed by clerks included the following:

1. Review of report forms to select those with insufficient or certain questionable responses for referral to technical assistants.
2. Deletion of fractions and misplaced entries of cents, and ensuring that data items were entered properly for keying.
3. Entering geographic codes for counties and States on all reports for representation of the location of agricultural services performed.
4. Verification of clerical editing and coding on a 100-percent basis.

The cases that could not be handled by the clerks because of problems not covered by the clerical check procedures were referred to a group of technical assistants. The technical assistants performed the following tasks:

1. Review of forms with no entries for gross receipts, payroll, or labor, to determine those requiring followup communications. These cases were then turned over to the professional staff.
2. Handling of some of the "write-in" activities with gross receipts entries, following a set of specific criteria. The various actions taken on these entries included the following:
 - a. If the activity was an agricultural service (hence in scope), the reported data were entered in the appropriate sections on the report form.
 - b. If one and only one write-in activity was not an agricultural service but constituted part of the total operation of the establishment, the information was appropriately entered into Section 5, "Other Operations Performed During 1969."
 - c. If more than one activity was not an agricultural service, the report was referred to the professional staff.
 - d. If an activity was not an agricultural service and did not constitute part of the total operation, the entry was deleted.
 - e. If an entry was not covered by the criteria presented in the instructions, it was referred to the professional staff.

Once the write-in activities on the forms were determined to be in scope or out of scope, the classification of the form itself could also be determined. The in-scope forms were recycled back through the clerical editing and coding, and the out-of-scope forms batched for future professional review.

3. Referral to the subject-matter specialists for professional review of any cases which could not be solved on the basis of the written instructions.

The professional staff in Washington was responsible for the solution of problem cases and the followup of incomplete reports. In order to obtain additional information needed for completing many of these report forms, form letters were mailed to over 1,500 respondents, almost 400 letters were individually tailored, and over 800 telephone calls were made. The most significant processing actions taken by the statisticians included the following:

1. Review of all notes and correspondence affecting the data reported on the forms.
2. Determination of whether establishments reporting at least one in-scope activity and more than one out-of-scope activity were in scope. Two or more out-of-scope activities that would be classified within a single SIC 2-digit group were edited into a combined single entry before the determination was made as to whether agricultural services was the primary activity. For example, if a report contained an agricultural services entry and entries of two out-of-scope activities in the same operation, both of which happened to be the wholesale merchandising of two particular products, those two entries would be combined as a single out-of-scope entry relating to the 2-digit SIC category for wholesale trade. A comparison would then be made between the amounts of gross receipts for the in-scope and out-of-scope entries, and the establishment designated as in scope or out of scope accordingly. In another circumstance, two entries of out-of-scope activities constituting two different 2-digit SIC groups would be compared separately with the in-scope entries before determining the scope of the establishment.
3. Edit of combination responses. The computer was not programmed to break down entries of combined gross receipts for two or more activities. Consequently, most of the editing of these cases was left to the professional staff, with technical assistants providing some help.
4. Review of all other cases referred by the technical assistants.

Keying the Data

Following the manual editing and coding, the next operation involved keying the information from the report form. This was performed directly onto magnetic tape, eliminating the need for punchcards. Most of this keying was verified on a sample basis to ensure the reliability of individual keypunchers. Corrections for reports rejected by the computer edit were also made by keying the changes prior to final review and tabulation of the data.

Computer Editing

The primary functions of the computer edit were (1) to check for data-keying errors; (2) to check for clerical coding errors and omissions; (3) to make consistency checks on various data relationships; (4) to make completeness checks, i.e., to examine various sections for necessary responses; (5) to identify and display very large and other selected types of operations for professional review; and (6) to provide an establishment code for each report based on its primary agricultural service activity.

When a particular item within a record was determined by the computer program to require review or correction, it was labeled with a numbered "flag" and the entire record was displayed on a printout of edit rejects. The computer was programmed to include parameters which provided the basis for most of the computer consistency checks. Among the specific consistency checks were the following:

1. The type of agricultural service(s) performed by the establishment (as reported in section 2 of the report form) compared with the type in which the workers of the establishment were involved (as reported in section 4).
2. The number of paid employees compared to annual payroll.
3. The number of full-time paid employees compared to the number of seasonal paid employees.
4. The number of unpaid workers compared to the type of organization (corporation, partnership, etc.).
5. The number of full-time unpaid workers compared to the number of seasonal unpaid workers.
6. Total annual payroll compared to agricultural service annual payroll and payroll for out-of-scope activities.
7. Total annual payroll compared to total gross receipts.
8. Total gross receipts compared to gross receipts for agricultural services and for out-of-scope activities.

Among the items checked for completeness were the following:

1. Gross receipts for agricultural services.
2. The number of unpaid workers for individual proprietorships and partnerships.
3. The number of paid employees and the annual payroll for corporations and significantly large operations.
4. Paid employees when annual payroll was reported and vice versa for all establishments.
5. Total annual payroll.
6. Total gross receipts.
7. Type of organization.

Depending on the significance of the inconsistencies or the incomplete data which were detected, either the record of the report was flagged for review, or else the computer made the necessary changes to the record to establish consistency and completeness. In all, approximately 8,000 cases were flagged through the computer edit.

Correction Program

Edit reject diary printouts of all flagged cases were analyzed by the professional staff in Washington assigned to the agricultural

services census. This phase of the data processing lasted from February through June 1971. The principal tasks involved making the necessary corrections on the data for consistency and completeness, deleting duplicate cases, and overriding flags on acceptable data (i.e., assuring that the computer program would not flag the data again). In many cases, corrections were made on the basis of factors not used in the determination of parameters for the computer edit program. The most prevalent factor was the primary activity of the establishment. Because of the numerous types of activities involved in this census and the scarcity of historical data relating to those activities, it was not practical to prepare a computer program utilizing parameters based on individual types of activities. Consequently, the professional staff based a large number of correction decisions on thoroughly analyzed pretest data and on experience gained with live data processed during the followup phase of this census. Other frequent corrections involved keying errors and clerical editing errors which caused various flags. All records which were corrected or were accepted without change after review were subsequently recycled through the computer edit until they passed successfully (with no items flagged).

Preliminary Summary Diary Review

After all data successfully passed through the computer edit, a preliminary summary diary printout was generated which listed the major data items for each record and totals of these items by county, State, and establishment type. The computer diary printout of major data items was produced in order to (1) allow necessary revisions of errors not previously rejected by the computer edit program, (2) make possible any preliminary adjustments of particular statistical tables to be published, (3) provide statistical totals for significant data not included in the publication plans but meriting consideration for inclusion, and (4) provide the tabulations for one of the county tables.

The primary types of errors were traced to statistical totals which significantly deviated from the expected data distribution pattern. As mentioned above, the diary format included totals for various categories in order to simplify the task of locating errors in individual records. For example, the discovery of figures for cotton ginning within the totals for Minnesota would indicate a need to review the individual cases exhibiting such data, because (1) it was previously known that no cotton gins existed in Minnesota, and (2) the data distribution of the diary indicated an exclusive concentration of cotton gins in other specific areas of the United States.

When errors were detected, the necessary corrections were made and were keyed for carrying to the computer records. The use of this summary diary review was designed to alleviate much of the burden of post-tabulation adjustments on the data. It was anticipated that table adjustments would be necessary to avoid publishing data that would disclose information about individual establishments, and for other reasons. It was, therefore, advantageous for the staff to prepare for some necessary adjustments in order to insure adequate final tables for publication

and to conserve valuable time during the final tabulation review phase.

Tabulation of Data

After the completion of all corrections during the edit correction program and the summary diary review, the data were tabulated by computer and the totals transferred to tabulation sheets. These sheets represented the format and content of the final publication tables. The basic plans for these tables had been developed during the initial planning stage. In addition to the adjustments made during the diary review, revisions based on recommendations and working experience were made to the table plans throughout the processing stage of the census.

Review of Tabulations

All tabulations were examined to insure that the data were reasonable and consistent. This phase was performed during August and September 1971 by the staff in Washington. The clerical staff was responsible for locating the report forms that had to be reviewed in connection with problems in the tabulations, reviewing the table printouts for consistency of data within individual tables and among related tables, carrying routine data changes to tables, assisting in the final consistency and completeness check of tables before release, and making hand tabulations for special projects. The professional staff was responsible for analyzing the data for reasonability and accuracy, locating tabulation errors, reviewing the relevant report forms, deciding what data changes were necessary and how they could be most efficiently carried to the tables, and carrying the more complex changes to the tables.

Sometimes it was necessary to decide whether changes to individual record data were necessary or whether adjustments to the totals would suffice. Necessary corrections were made on the basis of a further review and reappraisal of the original report forms, with verification of the editing, coding, and keying, and on the basis of correspondence and telephone calls to individual respondents. Upon completion of all tabulation changes, a short final review was performed to ensure that all problems had been satisfactorily resolved. The corrected tables were then released to the publication preparation staff in December 1971.

PUBLICATION PROGRAM

Data on agricultural services were prepared and published for the first time for the 1969 Census of Agriculture. All text and tables for this census were prepared in Washington. Data were published for all States and for those counties with at least three establishments reporting agricultural services. The results of the census of agricultural services are published in Volume III, 1969 Census of Agriculture. No unpublished data are available from the 1969 Census of Agricultural Services.