

## Chapter 2. Planning Operations

### INITIAL CONSIDERATIONS

The Bureau of the Census has the obligation of providing statistics for the use of Congress, other agencies of the government, and the general public. The information must be timely and reliable, while the cost of collecting the information and the burden of reporting imposed on respondents must be minimized. Planning for a census also involves striking a balance between maintenance of comparability for major items investigated in past censuses and revision of content to keep abreast of rapidly changing patterns in the field being measured. The Bureau must also keep current with improvements in the technology of collecting and processing procedures.

Another consideration is the Bureau's concern over the invasion of privacy, since the Bureau asks farm operators to provide information about their business operations that they would not ordinarily be expected to give to anyone. The farm operator must be assured that the information collected is needed by the Government and by a variety of organizations interested in agriculture. He must also be assured that the information is held in strictest confidence—the individual census report cannot be used for purposes of taxation, investigation, or regulation—and any published data must conceal identification of any individual operation.

Several innovations, including extensive use of administrative records maintained by other agencies, required elaborate planning and scheduling before the mailout of the report forms to the farm operators. Tentative target dates established for the completion of various major operations prior to the actual census, as well as the actual completion dates, are shown at the end of this chapter.

### ADVANCE PLANNING

#### Considerations Affecting Changes in Procedures

In preparation for the 1969 Census of Agriculture, the Bureau conducted a general review of the nature and purpose of an agriculture census, including a detailed review of the problems encountered in the 1964 Census of Agriculture. This standard Bureau approach is intended to develop better methods of collecting, processing, and disseminating census data and to eliminate, wherever possible, repetition of problems encountered in previous operations.

The overall planning was based on review of published reports, staff appraisals, records of work performed, and copies of detailed procedures from previous censuses. The primary planning objectives were to minimize the reporting burden imposed on respondents and the cost of the census, while increasing the accuracy and timeliness of the data collected.

In addition to the above general considerations, the initial planning generally called for a determination of exactly what the census would cover; a decision on allocation of budgeted funds; initiation of negotiations to gain the cooperation and assure the assistance of other Federal agencies; a review of the proposed content of census report forms by the Bureau, other Government agencies, and various interested groups in the private sector; and the development of a complete set of procedures and specifications to be used in implementing the census.

Two developments were of major importance in considering changes in the character of a farm census. One was the continuing rapid change in the structure of agriculture, including specialization, concentration of production in larger units, development of contract farming and other forms of integration, and the decline in the number of farms in the lower income classes. The other development, which had strong bearing on census methodology, was the rapid advance in administrative recordkeeping systems and automated data processing techniques. By the mid-1960's, most farm operations of economic consequence could be identified in the Internal Revenue Service (IRS) records of taxpayers, and many farm employers or self-employed farmers could also be identified in the records of the Social Security Administration (SSA) and other agencies. The use of automated data processing systems by these agencies made possible the use of their records for census purposes at a relatively low cost. The implications of such developments for the content and methodology of the agriculture census had been under continuing study, and plans and procedures for the 1969 census were developed in line with those which had been used successfully in the economic censuses since 1954, appropriately modified for agriculture.

The burden on the respondent was a most important consideration. One way to reduce the burden would be by asking fewer questions of the operators of smaller farms—approximately two-fifths of all farm operators. Results from the 1964 Census of Agriculture showed that 840,000 farms, with sales of less than \$1,000 each, accounted for less than 1 percent of the total

value of farm products sold. Another half million farms with sales between \$1,000 and \$2,499 accounted for only 2.4 percent of sales. On the other hand, some 870,000 farms with sales of \$10,000 or more accounted for more than 80 percent of the value of all sales. Because of these findings, the plans for the 1969 census were based on the premise that the size and economic importance of a farm should be one of the primary considerations in allocating resources to the collection and processing of data for that farm. It had become increasingly clear that the economically productive farms, on the one hand, and the marginal, part-time, and part-retirement operations, on the other, provide different levels of data and require different vehicles for collecting those data. Therefore, it was decided that two versions of the report form would be used: A detailed regular form for those farms with expected sales of \$2,500 or more, and a short form, covering only the major items, for those farms with expected sales of less than \$2,500. (See chapter I, pages 3 to 4, for a more detailed account of the changes made for the conduct of the 1969 Census of Agriculture.)

The specific advantages expected from the changes introduced for the 1969 census were the following:

1. A reduction in the cost of data collection and processing of the agriculture census proper, thus making resources available for the new inquiries on specialized types of farming and on agricultural services, and for work on the improvement of coverage and quality of reporting.
2. Provision of much needed data on new trends in U.S. agriculture and of more detail on subjects previously covered, by means of the special inquiries.
3. A December 31 reference date for livestock and poultry inventories, made possible by the mailout of the report forms in January 1970 instead of an enumeration in the fall of the reference year as had been customary in previous agriculture censuses. The December 31 reference date would simplify the problem of relating census inventory data to U.S. Department of Agriculture inventory data.
4. Reduction of the burden on respondents in the following ways:
  - a. Permitting each respondent to fill the report form at a time of his own choosing, within a reasonable time limit.
  - b. Having respondents fill the forms at the end of the reference year (1969), so that they could make greater use of records kept on a calendar-year basis for accounting and tax purposes.
  - c. Using a short form for farms with less than \$2,500 in value of sales.
5. The possibility of improved coverage of the economically significant farms. The Coverage Check for the 1964 Census of Agriculture had indicated that approximately 4 percent of the farms with a total value of sales of \$2,500 or more might have been missed. Studies made before the 1969 census suggested that use of the IRS lists supplemented by other lists might provide better coverage for these farms.

6. Better quality of reporting, to be obtained through the following means:

- a. More use of accounting and other records by respondents, expected to result from the combination of a mail-in procedure and a January enumeration.
- b. Reporting arrangements established in advance of the census for companies with extensive and complex operations. For example, with a mailing list compiled from different sources, duplicate reporting by headquarters and managers was possible. Also, farm managers might believe that reporting was not their job but that of the headquarters. Prior arrangements, therefore, would prevent both duplication and undercoverage.
- c. Virtual elimination of errors introduced by individual enumerators. This was expected to be particularly effective in reducing the total error of data for small areas.

7. The possibility of periodically updating the mailing list constructed for the 1969 census, for use in future statistical programs of both the Census Bureau and the U.S. Department of Agriculture.

#### **Hawaii—Special Handling**

The A1 and A2 report forms used for the 1969 Census of Agriculture were designed to cover all types of agricultural production in the continental United States. These report forms did not cover the various types of crops produced in Hawaii, such as tropical fruits, pineapples, taro, and coffee. To include these crops would have required additional length in the report form, which already contained 12 pages of items covering the wide diversification of agriculture found in the 49 continental States.

During initial planning it was expected that both A1 and A2 report forms would be used in Hawaii. However, with only 4,864 farms reported in the 1964 census, it was determined that the printing of two separate report forms for so small a number of farms would be unduly expensive. Therefore, a decision was made that only an A1 report form should be prepared for the enumeration of farms in Hawaii. It was also decided that a sample of the small farms would not be a part of the Hawaii enumeration.

The A1 report form used in Hawaii was arranged in a "skip" pattern similar to that on the A1 report form used in the continental States. This enabled the farmer to skip an entire section if it was not applicable to his operation. The Hawaii A1 was printed on blue paper for easy identification upon receipt in the Jeffersonville processing facility.

The mailing list for Hawaii was prepared from the same sources used in preparing the mailing list for the other States. Report forms and followup mailings to Hawaii occurred at the same time as the mailings made to farmers in the other 49 States.

#### **Alaska—Special Handling**

In planning for the 1969 Census of Agriculture, it was first determined that the report forms used for the 48 contiguous

States would be appropriate for use in Alaska. Subsequent discussions, however, raised questions regarding the advisability of using the A2 (short) form in Alaska.

In the 1964 Census of Agriculture, 382 farms had been counted in the State of Alaska. Because of the small number of farms reporting, the 17 election districts (the equivalent of counties in other States) had been grouped into 5 reporting districts for census purposes. Even with these groupings, one district had contained only 9 farms and three less than 100 in 1964. Therefore, it was decided to use only the A1, and to do a 100-percent enumeration of the farms on the mailing list for Alaska. These A1's and the followup notices were mailed out at the same time as those for the other 49 States.

## **DETERMINING THE DATA TO BE COLLECTED**

In determining content, the Bureau must determine, within the authority granted by Congress, that each inquiry fills a need for information, and is one to which respondents can readily provide accurate answers. There is a limitation on the number of questions that the Bureau can reasonably expect a farm operator to answer.

In addition, the U.S. participation in the 1970 World Census of Agriculture (a program sponsored by the Food and Agriculture Organization of the United Nations) involved commitments to provide certain data that would be comparable with those taken by the other participating nations.

Selection of the inquiries began with consideration of those on the report forms used for the 1964 Census of Agriculture. Specific inquiries which appeared in the 1964 questionnaires were changed or omitted. Many of the demographic items were omitted from the 1969 census because the information would be available from the 1970 population and housing censuses. New inquiries were added to the 1969 report forms because of the demand for specific items of information, results of the 1968 pretest, and experience gained from previous agriculture censuses.

The overall responsibility for determining the questions to be asked is vested in the Secretary of Commerce who normally delegates it to the Director of the Census Bureau. Selection of the questions was made in the light of the advice and counsel of an advisory committee, other government agencies, and other interested persons and organizations with final responsibility resting on staff members of the Bureau of the Census.

## **CONSULTATION ON THE CENSUS PROGRAM**

As one of the first steps in the development of the census, the Bureau invited the U.S. Department of Agriculture and other users of census data to recommend inquiries for the census and related surveys. These recommendations and the plans for the statistics to be published were reviewed by the Census Advisory Committee on Agriculture Statistics, comprising representatives of the major farm organizations, State departments of agriculture, State agriculture colleges, the U.S. Department of Agriculture, and other major users. The committee met in June 1967, April 1968, October 1968, May 1969, May 1970,

February 1972, and September 1972. In general, the advisory committee provided advice regarding relative priorities for inclusion of recommended new inquiries and guidance on the ability of farm operators to understand the terminology used and provide meaningful answers. It encouraged the Bureau to attempt the collection of new data which were considered necessary even though the data might be subject to some misreporting.

The organizations represented on the Census Advisory Committee were as follows:

- Agricultural Publishers Association
- American Agricultural Economic Association
- American Farm Bureau Federation
- American Feed Manufacturers Association
- American Meat Institute
- American Petroleum Institute
- Farm Equipment Institute
- Federal Statistics Users Conference
- National Agricultural Chemists Association (also representing Animal Health Institute and National Plant Institute)
- National Agricultural Advertising and Marketing Association
- National Association of State Departments of Agriculture
- National Association of State Universities and Land Grant Colleges
- National Canners Association
- National Council of Farm Cooperatives
- National Farmers Organization
- National Farmers Union
- National Grange
- Rural Sociological Society
- U.S. Department of Agriculture, Economic Research Service
- U.S. Department of Agriculture, Statistical Reporting Service

Representatives of the U.S. Bureau of the Budget (now the Office of Management and Budget) participated in the Committee meetings. Representatives of the Dominion Bureau of Statistics (now Statistics Canada) of Canada, and the Animal Health Institute attended some of the meetings as observers.

The Bureau at all times collaborated closely with the U.S. Department of Agriculture, primarily through a departmental committee which brought together and coordinated the needs and suggestions of all agencies of the Department. For example, the Statistical Reporting Service played a key role in the development of crop and livestock inquiries, and the Economic Research Service contributed substantially to the formulation of questions on farming practices, equipment and facilities, income, expenses, and capital inputs. Both the Statistical Research Service and the Economic Research Service detailed a senior staff member to work directly with the census staff during the first 2 years of planning the census.

## **PLANNING THE USE OF ADMINISTRATIVE RECORDS**

Beginning with the 1954 economic censuses, the Bureau of the Census has been working in close cooperation with the IRS and SSA to utilize tax and social security records maintained by these two agencies. The main objectives have been (1) to provide mailing lists and sampling frames for the Census Bureau's data-collection programs, (2) to relieve some firms of

the requirement to complete census report forms by securing information already available in administrative records (an objective that, while not feasible for the 1969 Census of Agriculture, will be considered in planning for future censuses of agriculture), (3) to establish new statistical measures, and (4) to check the quality of the Bureau's data.

Federal law requires that all individuals, proprietorships, partnerships, and corporations having taxable income must file income tax returns with IRS. Additionally, there are a number of other requirements for the filing of income tax returns even when there is no taxable income. Any business (farm included) having one employee or more must also file Federal Insurance Contribution Act (FICA) payroll tax returns. Revenues from FICA taxes are credited to trust funds from which Old Age and Survivors Insurance benefits and other social security benefits are paid. The SSA receives and maintains information on firms and other types of operations such as farms that pay payroll taxes, so that it can furnish necessary data to the Treasury Department for proper crediting of payments to the social security trust funds.

By special arrangement, the Census Bureau was given access to relevant data on tax returns for statistical purposes.<sup>1</sup> Census Bureau personnel using IRS records were informed that the data were both "census confidential" and "IRS confidential."

The use of administrative records have proven its value in the economic censuses. However, studies made in the fifties and early sixties had indicated that an adequate coverage of farms for the census of agriculture could not be obtained effectively at that time with the use of administrative records. In order to check the feasibility of such an approach for the 1969 Census of Agriculture, the Bureau made several checks of IRS data on farms and on the coverage that might be obtained. One of these tests was a comparison of IRS, Census Bureau, and U.S. Department of Agriculture (USDA) data. IRS annually selects a sample of tax returns and compiles detailed information on gross farm receipts on a national and State basis. The results were compared with results from previous agriculture censuses and with farm income as estimated by the USDA. At the national level, receipts reported to IRS were larger than census data and lower than USDA estimates. The pattern was generally the same on a State-by-State basis, except in some southern States where farm receipts reported to IRS were lower than either census results or USDA estimates. This indicated the need for a supplemental address list in the South.

The Bureau had conducted a coverage check—an independent enumeration of a small sample of farms—following the 1964 agriculture census. In another test, a matching of the coverage check data with IRS returns for 1963 and 1964 led to the general conclusion that, outside the South, the basic IRS list would yield as complete or better coverage than the canvass used for the enumeration in the 1964 census. The IRS coverage was best for farms grossing \$2,500 or more and fell off as the gross income figures decreased. In the South, however, for farms with gross sales of \$2,500 to \$10,000, the IRS list could be

supplemented by the list maintained by the Agricultural Stabilization and Conservation Service (ASCS).

Because of the above findings, it was proposed that coverage in the census proper be limited to farms that could be identified, directly or indirectly, through the administrative records available from IRS, SSA, and other government agencies. In practice, this meant that a mailing list for the census would be constructed by merging and unduplicating current lists from several of these sources. The final mailing list should contain all units considered farms, with emphasis given to including all farms with gross sales of \$2,500 or more, accurate information on the names and addresses of persons or organizations operating farms, and some indication of the size of the farms.

Bureau staff held separate meetings with IRS and SSA staffs. Census Bureau officials conferred with their counterparts at IRS and SSA to clarify Census Bureau specifications and determine how the two agencies could best provide the required data. As a result of those meetings the Bureau was asked to develop detailed sets of requirements and specifications for IRS before IRS "froze" all processing plans for the 1968 income tax year. For purposes of establishing a mailing list for the 1969 agriculture census, the Bureau requested that IRS make available the following records: (1) Farm sales data based on the 1968 tax year, which gave the Bureau a reasonable figure for total expected sales for 1969; and (2) names and addresses of people who filed IRS forms for agriculture income. After the Census Bureau and IRS had agreed on specific data to be supplied, additional discussions were held to determine the proper format for providing this information. SSA provided the essential information on those who reported employees engaged in agriculture.

#### SCREENING PROCEDURES TEST, JANUARY TO JUNE 1967

The first agriculture census test, referred to as the Screening Procedures Test, was a multipurpose test. One purpose was to test procedures to be used in the prec canvass for the 1969 census—that is, the canvass to be made before the census to determine the exact names and addresses to which report forms should be mailed and to obtain enough information to determine which form to send to each. In addition, the test was to provide a rough measure of the proportion of out-of-scope units (units which did not qualify as farms) in the records, as well as a measure of the response rates and quality of response to be expected. It would also test a report form for use in a prec canvass for a pretest of the census procedures to be conducted early in 1968, and would provide some experience in the mailing procedures and in the techniques needed to create an agriculture census mailing list from administrative records.

The mailing list consisted of names and addresses from four sources:

1. A sample of names and addresses of persons reporting 1965 income on IRS Form 1040 Schedule F (Farm Income and Expenses).
2. A sample of partnerships filing IRS Form 1065 (U.S. Partnership Return of Income) in 1965 who reported farming activity.

---

<sup>1</sup> Authority for this inspection is contained in Executive Order No. 10911, dated January 17, 1961, and specific regulations are set forth in Treasury Decision No. 6547 approved on the same date.

3. A sample of agricultural employers reporting five employees or more in 1965 on Social Security Form 943 for agricultural employers.

4. Records of the 1964 Census of Agriculture Coverage Check for those farms with sales of \$2,500 or more reported in the 1964 census which were not represented among the income tax returns for 1963 or 1964. These farms were included in the Screening Procedures Test mailing list in an attempt to get further information which might lead to matching their records in the Coverage Check sample to IRS returns (and thus were included for purposes of a different study than the Screening Procedures Test).

A short form, ATF-1<sup>2</sup>, was mailed to farm operators in the sample of Form 1040 filers who had reported gross receipts from agricultural products of less than \$10,000. A long form, ATF-2, was mailed to the Form 1040 filers in the sample who had reported gross receipts of \$10,000 or more, to the IRS Form 1065 partnership filers, to the SSA Form 943 filers, and to the farm operators in the 1964 Census Coverage Check sample who had reported more than \$2,500 in sales of agricultural products. Approximately 225 short forms and 1,500 long forms were mailed out.

An analysis of the test of the short form used for the 1040 filers who had reported sales of agricultural products of less than \$10,000 in 1966 showed that:

1. Completed forms were obtained by mail for all but four filers in the sample.

2. Roughly, one quarter of the filers were "inactive," i.e., they were landlords only (about two in five), or had no agricultural operations in 1966 because of death, retirement, sale of farm, or other reasons.

3. Of the remaining three quarters of the filers, about six out of seven were active farm operators themselves. The remainder appeared to be associated with active farm operations, many of them as partners.

4. Very few failed to report State and county.

5. Very few failed to check a box for gross sales.

6. In item 7, "Name and address of person filling this report," the name of the respondent filling out the report form was the same as that on the address label in 88 percent of the cases, and the name given in question 7 could be identified as that of the spouse or agent of the person to whom the report form had been addressed in another 10 percent of the cases. The address was the same in 70 percent of the cases, and there were only minor differences in another 18 percent. There were different addresses in 10 percent of the cases, and no address was given in question 7 in the remaining 2 percent.

The analysis of the response received on the long form, ATF-2 showed that—

1. There was very little nonresponse to the items with boxes provided alongside the categories so that the respondent could answer just by checking the appropriate box.

2. Nonresponse rates for the question on location of headquarters were higher for single operating units than for complex units. A "complex unit" was defined as an agricultural operation which had more than one farm or ranch (multiunit case) or which had considerable acreage in two counties or more (crossline case).

3. The nonresponse rate on "number of operating units in 1967" was high.

4. The two principal problems were (a) determining the relationship of the addressee to the agricultural operations, and (b) determining the number of separate operating units.

An analysis was made also of the returns of different types of mail followup used for the SSA 943 sample in a test conducted during the 12 weeks from February 24 to May 19 after the initial mailout of the forms. The sample consisted of 190 employers reporting 5 to 9 employees on SSA Form 943, 181 reporting 10 to 19, 232 reporting 20 to 49, and 495 reporting 50 or more. Each of these four strata was subdivided into eight approximately equal subgroups. Each subgroup received a specified combination of three followup treatments. The variations in the followup were the following: Some employers received a reminder postcard on March 3, one week after the initial mailout, in addition to the letter followups; the others did not receive a postcard reminder. Some received followups spaced at 4-week and then 2-week intervals (4-4-2-2), while the others received followups on a 3-3-3-3 week spacing. Some who had not responded after three followups were sent their fourth followup via certified mail while others received it via regular mail. The followup patterns for the eight subgroups of employers within each of the four strata were the following:

Group	Subgroup	Reminder card sent	Spacing of followups (intervals in weeks)	Fourth followup sent by certified mail
AB	A	Yes	4-4-2-2	Yes
	B	Yes	4-4-2-2	No
CD	C	No	4-4-2-2	Yes
	D	No	4-4-2-2	No
EF	E	Yes	3-3-3-3	Yes
	F	Yes	3-3-3-3	No
GH	G	No	3-3-3-3	Yes
	H	No	3-3-3-3	No

Under usual circumstances, those persons who had not responded to the mail followup by a given date would have been followed up by telephone or field visit. This enumerator followup was not actually done in the Screening Procedures

<sup>2</sup>Forms used in the Screening Procedures Test are reproduced in appendix G.

Test, but the cost analysis included estimates of the cost of telephone and field followup by enumerators for persons who had not responded by June 16, 4 weeks after the fourth followup. The cost analysis indicated that—

1. Sending the early reminder card to all units on the mailing list increases the overall cost of data collection but does obtain earlier returns.
2. The use of certified mail for the final followup is likely to reduce the overall cost of data collection, by obtaining a larger return by mail and thus reducing the amount of costly field followup.
3. The use of uneven spacing of mail followups, as compared with even, has little effect on cost. However, for the stratum of employers with 50 employees or more, the combination of (a) uneven spacing of followup letters, and (b) no reminder card, clearly resulted in a lower overall response rate than the other procedures.
4. Costs of data collection by telephone and personal visit dominate total costs even when 90 percent of the returns are obtained by mail, so a very small difference in mail response could justify the selection of one mail procedure in preference to another.

A further analysis, in relation to points 1 and 3 above, showed that when the followups were spaced at 3-week intervals (3-3-3-3), the response for the group with no reminder card (GH) caught up with the response for the group with reminder cards (EF) about 8 weeks after the initial mailing. However, when the followup spacing was 4-4-2-2, the no-reminder group (CD) took about 12 weeks to catch up to the group that had received reminders (AB). This suggests that followups at shorter intervals of time are more effective.

### PRECANVASS FOR THE PRETEST

In order to simulate the proposed 1969 procedure as closely as possible, a test prec canvass of large operations was conducted for the January 1968 Pretest. The prec canvass covered large reporting units in the areas selected for the pretest—selected counties in Colorado and South Carolina—and occurred in May 1967. The objectives of this test prec canvass, like those of the prec canvass for the census, were—

1. To identify organizations with more than one farm, and to establish reporting arrangements for their individual farms.
2. To obtain up-to-date information from very large or complex operations about the identification, organization, and location of their farming activities.

The mailing list for the test prec canvass was comprised of the following:

1. From the 1964 Census of Agriculture records, all farms in the two States that reported a total value of sales of agricultural products of \$100,000 or more (all economic Class 0 farms).

2. From the 1964 Census of Agriculture records, all farms with large amounts of land in each of two counties or more (referred to as crossline acreage). For Colorado, 1,000 acres was considered a large amount of land; for South Carolina, 500 acres.

3. From the SSA list of agricultural employees who filed SSA Form 943 for 1964, all filers listing 50 wage items or more (excluding persons already contacted for the Screening Procedures Test).

Before the prec canvass mailout, these three lists were merged and duplicate names and addresses were removed manually. The overall reduction in the mailing list as a result of this unduplication was small—4.1 percent (from 1,256 to 1,204) in Colorado and 7.9 percent (470 to 433) in South Carolina. A fairly substantial proportion (41.2 percent for Colorado and 53.2 percent for South Carolina) of the operators filing SSA 943's were also found in the 1964 census list of Class 0 farm operators (\$100,000 or more reported in sales of agricultural products). There was relatively little overlap between the two 1964 Census of Agriculture lists.

For the test prec canvass, the form used in the 1967 Screening Procedures Test (Form ATF-2) was mailed to each farm operator on the list. Special instructions were given in the transmittal letter on how to complete reports for each agricultural activity and for the portions in different counties. For followup the same form was used, and followup letters were sent to all nonrespondents.

The mailout was on May 26, 1967. There were 1,640 forms mailed, 1,204 to Colorado and 436 to South Carolina. By June 23, 48 percent had been returned; a followup was sent to the remainder. Another followup was sent out on July 14, when 60 percent of the prec canvass forms had been returned, and another on July 28, at which time 72 percent had been received. Final receipts of prec canvass forms on August 11, 1967, were 1,420, of which 1,042 were from Colorado and 378 were from South Carolina; this represented 87 percent of those sent to Colorado and 87 percent of those to South Carolina. An additional 46 forms were returned by the post office as undeliverable, so a total of 1,466 forms were returned in the 2½ month period.

When it was determined from a prec canvass return that an operation was out of scope for the agriculture census, the name and address of the operator were removed from the mailing list. All other prec canvass names and addresses, including those for which no returns were received, were included in the mailing list for the pretest.

### PRETEST, JANUARY 1968

#### Purpose

In January 1968, mail collection of data was tested, using samples of potential farm operators in Colorado and South Carolina. The main objectives of the pretest were—

1. To develop and test mail-out and check-in procedures for initial and followup mailings.



2. To evaluate alternative versions of both the short and regular forms (two regular and two short forms).
3. To develop and test procedures for followup of non-respondents.
4. To evaluate the completeness and "processibility" of individual items.
5. To provide a file of "live" report forms for use in the development and testing of manual and computer processing operations.

### Location and Scope

The report forms were mailed to all farms on the mailing list for Sumter County, S.C., and for Crowley and Otero counties, Colo., as well as farms in adjacent areas served by the same post offices as the farms in those counties. These three counties plus the adjacent area were the full-coverage areas for the pretest. Report forms were also sent to a 10-percent sample of the listed names and addresses in the remainder of both States.

South Carolina and Colorado were chosen for the pretest for the following reasons:

1. They contained a wide variety of different types of farming.
2. Neither State contained an unusually large number of farms.
3. They provided representation of both favorable (Colorado) and unfavorable (South Carolina) environments with respect to—
  - a. Coverage of farms by IRS lists.
  - b. Educational level of respondents.

In addition, Sumter County, S.C., was to be the site of a pretest in May 1968 for the 1970 Census of Population and Housing, so that data from an independent enumeration of the county would be available as a check on the coverage of the agriculture census pretest.

### Pretest Report Forms

Four report forms were used in the pretest: Forms ATF-3A and ATF-3B for the small places, and Forms ATF-4A and ATF-4B for the larger farms (see reproductions in appendix G). Each addressee was sent one report form, either an A or B style, and either the regular or short version. The decision on whether to send a short or standard form to a particular person, i.e., whether the person had a large or small agriculture operation, was based on information obtained from administrative records. This information included agriculture income reported on the IRS Form 1040F, Government program payments received from ASCS, and the number of agriculture employees reported to SSA.

The mailing lists for both forms were divided into two parts, with the farms for each half selected on a random basis. The A forms were sent to one half, the B forms to the other.

Although there were substantial differences in content between the abbreviated and regular versions, the content of the A and B styles within each version was essentially the same. The major differences were—

1. For the entire report form, the A version had a "closed" format, and the B version had an "open" format.
2. Answer spaces in section 2, Ownership, in the A version were in a columnar arrangement, and in the B version were in an offset arrangement.
3. Fertilizer to be reported on the A version as total tonnage in the section on chemicals, and on the B version to be reported separately as tonnage used for each individual crop.
4. Unit of measure shown before quantity harvested in the A version, and after quantity harvested in the B version.
5. In column headings, abbreviated phrases such as "Acres harvested in 1967" were used in the A version, and complete sentences such as "In 1967 how many acres did you harvest?" were used in the B version.
6. The skip pattern in the A version provided a "No" box only, and directions for what to do if the answer was either "Yes" or "No", and in the B version provided a "Yes" box as well as a "No" box, and a "Yes" or "No" response.
7. For dollar values, in the A version boxes were to be checked for approximate values, and in the B version actual dollar amounts were requested.
8. On the short form only, on the A version there was a lightly shaded column for fractions of acres, and on the B version there was no provision for entering fractions.

### Mailing List

The mailing list for the pretest consisted of in-scope names and addresses from the prec canvass (i.e., primarily persons with large agricultural operations); names and addresses of farm operators filing IRS Form 1040 and Schedule F, or the equivalent, for 1965; agricultural employers filing SSA Form 943 for 1966; 1964 census farms classified as "abnormal" (institutional); and, in South Carolina only, the ASCS lists of cooperating farm owners and operators. (See table 1.)

These source lists were unduplicated (i.e., they were matched and duplicate names and addresses were removed), and the sampling was carried out. About half the cases qualified for the short form and about half for the regular form.

### Mailout and Followup

The mailout was on January 2, 1968, to all the names on the mailing list for the full coverage area and to the 10-percent

sample of the mailing list for the remainder of the two States. There were 18,181 report forms mailed, 6,573 to Colorado and 11,608 to South Carolina. (See table 1.)

Insofar as possible, all mail-out and check-in procedures for the pretest were automated, using the same procedures expected to be used for the actual census.

By January 26, returns had been received from 5,966 respondents (33 percent), including postmaster returns (PMR's) and correspondence. On January 29 the first followup letter was mailed to the remaining 67 percent. Successive followup letters were mailed on February 28, March 25, April 17, and May 9. The total mail response was 92 percent: 6,294 returns, or 96 percent, from Colorado, and 10,512 returns, or 91 percent, from South Carolina. (See table 2.)

Of the mail returns from the pretest, slightly less than two-thirds were from farm operators; i.e., more than one-third of the returns were classified as nonfarm operators—primarily landlords. Postmaster returns (PMR's) accounted for 3 percent of the entire mailing list.

Ten enumerators (who were staff members of the Bureau) were used to follow up on the remaining nonrespondents in the three

full-coverage counties in June 1968. There were 66 such cases in Crowley and Otero Counties, Colo., and 288 in Sumter County, S.C. The enumerators found that 10 cases in Colorado and 31 in South Carolina were duplicates with other names on the mailing list. Field interviews were made with 55 respondents in Colorado and 236 in South Carolina, with nearly two-thirds—40 in Colorado and 147 in South Carolina—found to have farm operations. Census enumerators were able to contact all but one individual in Colorado, while they failed to contact 21 individuals in South Carolina. Respondents refusing to cooperate totaled 6 in Colorado and 4 in South Carolina. (See table 3.)

During the check-in of returns, a regular form was sent to any farm operator returning a short form who reported a total value of sales in 1967 above the cutoff of \$10,000, or meeting certain other criteria of size. There were 253 such cases; 150 of these operators completed the regular forms and returned them by mail.

As in the census, letters received from respondents and notes attached to the returned questionnaires were reviewed, and form letters, if appropriate, or individually tailored letters were sent to respondents about the problem cases.

**Table 1. Source of Mailing List for 1968 Census of Agriculture Pretest**

Source	Total, both States	Colorado			South Carolina		
		Total	Full coverage <sup>1</sup>	Other	Total	Full coverage <sup>2</sup>	Other
Total mailing list .....	18,181	6,573	1,239	5,334	11,608	3,600	8,008
Precanvass .....	1,178	1,016	52	964	162	39	123
SSA 943's .....	4,001	2,306	543	1,763	1,695	628	1,067
1964 census—abnormal farms .....	9	5	2	3	4	1	3
ASCS .....	5,749	3	—	3	5,746	1,930	3,816
IRS (1040F) .....	7,244	3,243	642	2,601	4,001	1,002	2,999

<sup>1</sup> Otero and Crowley Counties.

<sup>2</sup> Sumter County.

**Table 2. Receipts of 1968 Pretest Report Forms at Each Mail Followup, by States**

Date of closeout of check-in of of returns before sending out followup letters	Total receipts		(Cumulative)					
			Colorado			South Carolina		
	Number	Percent	Total receipts (number)	3A and 3B forms (percent)	4A and 4B forms (percent)	Total receipts (number)	3A and 3B forms (percent)	4A and 4B forms (percent)
January 26 .....	5,966	33	2,499	43	37	3,467	32	27
February 23 .....	11,821	65	4,739	77	71	7,082	61	63
March 22 .....	14,259	78	5,583	88	84	8,676	75	76
April 12 .....	15,693	86	6,029	94	91	9,664	83	85
May 3 .....	16,343	90	6,206	96	94	10,137	87	90
May 24 <sup>1</sup> .....	16,806	92	6,294	97	95	10,512	91	93

<sup>1</sup> Returns following fifth and last followup.



**Table 3. Nonresponse to Mail Pretest in Full Coverage Counties in Colorado and South Carolina**

Operation	Total	Colorado			South Carolina		
		Total	Short	Regular	Total	Short	Regular
Total mail nonresponses .....	354	66	4	62	288	208	80
Duplicates <sup>1</sup> .....	41	10	0	10	31	12	19
Field interviews .....	291	55	4	51	236	183	53
Farm operations .....	187	40	1	39	147	110	37
Nonfarm operations .....	94	9	3	6	85	72	13
Refusals .....	10	6	0	6	4	1	3
Unable to contact addressee .....	22	1	0	1	21	13	8

<sup>1</sup> Addressees in mailing list more than once because of differences in either name or address.

### Questionnaire Evaluation Interviews

After the first pretest followup, 10 Bureau staff members spent the week beginning February 26 in the three full-coverage counties conducting questionnaire evaluation interviews. They interviewed a representative sample of about 165 farm operators in each of the three counties whose pretest reports were received at the Jeffersonville Operations Office before the January 26 closeout for the first followup. This survey was undertaken to get information about the attitudes of the respondents regarding problem areas of the questionnaire, and about the time required to answer it. Most respondents did not appear to find the questionnaire too long, and did express satisfaction with having enough space for their responses:

At the time of the field followup to complete the enumeration, enumerators asked some questions about why the persons interviewed had not returned their questionnaires. The most frequent reason given was that the nonrespondent had not had the time. The next most frequent was that the questionnaire was not applicable; the persons who gave this reply usually were correct, but failed to understand that they were supposed to return the questionnaire so their names could be removed from the census mailing list.

### Data Processing

Some preliminary tallies of the pretest responses (and non-responses) were prepared in April 1968, after returns from the third followup were received. The quantity of returns at that time was sufficient (about 87 percent, including PMR's and correspondence) that most questions concerning the use of the mail report form and its content could be answered. The rest of the pretest data processing was spread over the next 7 months, being completed in November.

Specifications for analytical tallies (including tallies of consistency and completeness of responses, needed for review by analysts) for both the short and standard forms were prepared in February, and tallies were distributed for review in April, June, and July. Specifications for final machine tabulation of selected data items for the three full-coverage counties were prepared in February and March. The forms were reviewed and edited by the subject-matter analysts, then sent to have the data punched on cards. Data punching began early in June; the last

report forms were sent for punching in July. The final tabulations were completed in November, as stated above.

### Results

The results of the pretest were encouraging in terms of mail response rates, completeness of the mailing list, and quality of data on report forms filled by respondents. It was judged that the quality of the data would be as good as had been obtained in previous censuses by enumerator canvass. The number of farms reported in the full-coverage counties appeared quite reasonable when compared with the farms enumerated in the 1959 and 1964 censuses of agriculture.

In general the 3B and 4B versions of the forms were found to be somewhat more satisfactory, though some details on the 3A and 4A versions seemed preferable and were adopted. All changes were made for the purpose of improving reporting. The principal changes made to the final census report form for the 1969 census because of the pretest results were the following:

**Section 1, Type of Organization.**—The item for corporations in the section on type of organization on the standard form was changed to provide for checking either "10 or fewer shareholders" or "More than 10 shareholders," to make it clear that a family-held corporation had to be an organization with shareholders. In the pretest the "Family held" box had apparently been checked for many family operations that were not true corporations. This was evidenced in the fact that the number of family-held corporations reported was too large by comparison with IRS and USDA statistics.

**Section 2, Land Ownership.**—The section on land ownership was modified on both the short and standard forms, because many reporting problems were encountered.

**"None, All, or Part"**.—The "None, All, or Part" columns appearing on the 4A form, for individual crops irrigated or fertilized, were deleted.

**Unit of Measure.**—The multiple choice in units of measure was eliminated because there were so many errors in the reporting of measures. The final census forms showed only one unit of measure to be used in a response, wherever possible. In a few cases there were two or more choices; for

example, the quantity of field corn harvested could be reported in bushels or hundredweight, and figs harvested could be reported in either pounds fresh or tons dry.

**Quantity Harvested.**—The column for entering the unit of measure used in reporting the quantity harvested for each crop was eliminated because of reporting errors. The final report form had only one column, for quantity; the unit of measure was printed in the answer space where the respondent was to report the quantity harvested.

**Crops Listed.**—The listing of only certain crops, and having the respondent write in others (tried for the first time in the pretest) was retained, but the lists of certain crops (vegetables, berries, and fruits) were rearranged in order of importance, where possible, and only minor crops were to be written in by respondents. Because of an alphabetical arrangement of crops on the pretest standard form, minor crops such as artichokes appeared first whereas more important crops, such as tomatoes, came at the end of the list, and respondents were asked to write in all remaining crops.

**Amount Harvested.**—The final questionnaires were changed to use the word "amount" only when the answer was requested to be in dollars, because so many respondents in the pretest answered in terms of dollars wherever the "amount" was requested. For example, the word "amount" was replaced by the words "quantity harvested" to obtain figures on the amount harvested.

**Class Interval vs. Single-Answer Questions.**—In the 3A and 4A versions of the pretest forms, for most questions concerning dollar entries (such as expenditures and sales), there were check boxes that the respondent could use to indicate the approximate dollar range of his entry, rather than his being requested to give a specific dollar amount, as on the 3B and 4B questionnaires. The check-box type of answer used on the 4A version was found to be better for land and building questions for which it was difficult for the respondent to supply an estimate, but this was not found to be true for such items as expenditures and value of products sold, for which the respondent frequently had book figures to refer to. The check boxes were not used anywhere in the 1969 forms since it was determined that the respondents would have to go over their books to arrive at even approximate figures for most of the value or dollar items.

**"None" Boxes.**—Because so many respondents failed to check the "None" boxes on the pretest forms when applicable, these boxes were omitted from most sections of the census forms and were used in only those instances where needed for skip patterns and editing.

**Section 35, Operator Characteristics.**—Questions concerning who the operator was, or who made the day-to-day decisions and supervised the farm, were eliminated from the census report forms because of errors in pretest responses. The principal problem was that many tenant farmers stated that the landlord made most of the decisions.

**Dollars and Cents.**—The final report forms had a column for recording cents although only the dollar part of the entry was used. In nearly half of the replies to expenditure and sales questions, the pretest respondents entered both dollars and cents, although only dollars were requested and, after each space where dollars were to be recorded, there was an "XX" to attempt to prevent recording of the cents.

The design of the final census short form was similar to the census standard form for comparable sections because there had been no significant differences in reporting on the four versions of the pretest form for similar sections.

It was decided that a file copy should be sent with all standard forms (but not with the short forms) because about one-half of the respondents indicated that they wanted a file copy to keep for their own records.

## TENANT SEARCH

One of the most acute enumeration problems was expected to be the coverage of tenant farmers, particularly in the southern States. For this reason, a "tenant search" was conducted in the pretest full-coverage area (Sumter County) of South Carolina in order to determine the quality of the coverage of tenants on the pretest mailing list.

As report forms were received, the section on operator characteristics was reviewed. Of 3,240 respondents from South Carolina, 684 indicated that they had tenants. These cases were examined, and the names and addresses given for the tenants were checked against the pretest mailing list. Of the 684 cases, 88 tenants who should have been included in the pretest were not found on the mailing list. Report forms were mailed to the 88 tenants, with 68 responding; slightly less than half the returns were determined to be in-scope reports.

## CENSUS OF AGRICULTURE PRETEST EVALUATION (CAPE)

In early 1966, the decision was made that the 1969 Census of Agriculture would be taken by mail. This decision posed problems never before encountered with the taking of the census. Such questions arose as how to develop a mailing list, and how to be certain that it would be complete and valid. Such problems as these were the cause of a program called CAPE—the Census of Agriculture Pretest Evaluation—which was initiated in 1967 to evaluate the results of the January 1968 pretest.

CAPE was restricted to various parts of the pretest in order to limit the CAPE projects to specific problem areas, while at the same time testing a rather inclusive population. CAPE projects involved only the full-coverage areas in the two States that were included in the pretest.

The original mailing list for the pretest in Colorado and South Carolina had included approximately 3,600 addresses for Sumter County, 250 for Crowley County, and 1,000 for Otero County. Of these there were 1,793 "in-scope" farms in Sumter County, 211 in Crowley County, and 515 in Otero County.

## CAPE 1: Agriculture Pretest—Population and Housing Dress Rehearsal Match

There were two purposes for this project. The first was to evaluate the completeness of coverage of the agriculture pretest of farms in Sumter County, S.C. The second was to develop and test matching and record-linkage procedures for possible use in producing tabulations based on a sample match of the 1969 Census of Agriculture and the 1970 Census of Population and Housing.

The pretest mailing list for Sumter County approximated in content the lists to be used in the census. It consisted of names from the following sources: (1) Precanvass; (2) SSA 943 files; (3) 1964 census abnormal farms and farms with sales of \$100,000 or more; (4) ASCS; and (5) 1040F. This census pretest mailing list was matched against the returned questionnaires from the 1968 Population and Housing Dress Rehearsal in Sumter County for the 1970 census. Contained within these population questionnaires were six screening items, on whether (1) the place was used for farming, (2) the place was on 10 acres or more with sales of agricultural products amounting to at least \$50, (3) the place was on less than 10 acres with sales of agricultural products amounting to at least \$250, (4) the operator of the place had a farm business or industry, (5) the operator's occupation was farming, and (6) the operator earned an income from farming.

Of 818 population dress rehearsal respondents indicating some agricultural activity, 442 (54 percent) were identified as potential farm operators. Of the 442 cases, approximately 38 percent were matched to the agriculture pretest mailing list in an office analysis. The next step was a field check which matched an additional 6 percent. Errors in name and address were found to have caused the failure of the office analysis to match most of the missed 6 percent. Of the possible farms that were unmatched before field check, 14 percent were found to be in-scope farms not covered by the 1968 agriculture pretest original mailing list. (See table 4.)

**Table 4. CAPE 1: Results of Field Check in Matching Population Dress Rehearsal Questionnaires to the Pretest Mailing List**

Classification	Number in dress rehearsal 25 percent sample	Percent
A. Potential farms after office analysis . . . .	442	100.0
B. Potential farms found to be in scope . . .	256	57.9
1. Already on mailing list . . . . .	195	44.1
a. Found on mailing list before field check . . . . .	168	38.0
b. Additional in-scope farms from field check . . . . .	27	6.1
2. Added to the mailing list after field check <sup>1</sup> . . . . .	61	13.8
C. Potential farms found to be out of scope as a result of field check . . . . .	186	42.1

<sup>1</sup> Excludes agricultural operations reported to have been initiated after 1966.

## CAPE 2: Mailing List Source Analysis

The purpose of this analysis was to determine the optimum combination of the sources for use in constructing the 1969 census mailing list. It was important to know which of the lists gave the most complete coverage and which list contained the smallest incidence of out-of-scope cases.

The sources used for this study were (1) Social Security Form 943 files; (2) the file of Internal Revenue Forms 1040 with Schedule F or equivalent; (3) Agricultural Stabilization and Conservation Service Central Tape File of farm operators and owners; and (4) the records of 1964 Census of Agriculture farms with sales of \$100,000 or more, abnormal farms, and certain farms with sizable crossline acreage.

A sample was chosen from the complete mailing list of each of the States in the pretest; i.e., South Carolina and Colorado. After the sample was chosen, each report form was coded according to mailing list source and also according to whether they were farms.

The tables below show the results of the study. Table 5 displays the sources of the mailing list along with the number of units in that particular source and the number that were only in that source.

**Table 5. CAPE 2: Units on Mailing List for Full Coverage Areas, by Source**

Source	Total number of units included in this source	Units included only in this source
Colorado . . . . .	1,678	1,168
Precanvass . . . . .	53	28
Form 943 file . . . . .	640	395
1964 census (abnormal farms) . . . . .	2	1
Form 1040F file . . . . .	983	744
South Carolina . . . . .	4,793	2,636
Precanvass . . . . .	38	12
Form 943 file . . . . .	652	361
1964 census (abnormal farms) . . . . .	1	1
ASCS - EI . . . . .	54	25
Form 1040F file . . . . .	1,269	342
ASCS-SSN . . . . .	2,784	1,895

Table 6 displays the units appearing on both 943 and 1040 sources by State and kind of match, and indicates the number of units that carried the same employer identification (EI) number and the number of units that did not. As shown in this table, only about one-fourth of the units appearing on both the 943 and the 1040 lists could be matched on the basis of the EI number, which indicated that many duplicates would not be found by just matching EI numbers.

**Table 6. CAPE 2: Units Appearing in Both 943 and 1040 Files by Kind of Match**

State and kind of match	Number of units
Colorado .....	231
Form 1040F carried same EI number as form 943 .....	56
Form 1040F carried no EI number or different EI number .....	175
South Carolina .....	261
Form 1040F carried same EI number as form 943 .....	63
Form 1040F carried no EI number or different EI number .....	198

**CAPE 3: Comparison of Pretest Totals With Available Check Data**

CAPE 3 was expected to evaluate the completeness of coverage of farms and selected crops and livestock data items in the 1968 pretest by comparing the pretest totals with data available from such sources as the 1964 Census of Agriculture, State offices of the SRS and of the ASCS, etc.

CAPE 3 was to be limited to the full-coverage counties in Colorado and South Carolina since telephone and field followup of nonrespondents was to be restricted to these areas. Following

the closeout of telephone and field followup, the corresponding pretest totals were to be obtained by tabulation of data for farms actually located in the full-coverage counties. CAPE 3, however, was dropped because of incomplete county tabulations of pretest data.

**CAPE 4: Pretest Enumerative Survey Match**

The purpose of this study was to develop and test procedures for using the enumerative surveys of the SRS as a vehicle for checking coverage and reporting error in the 1969 Census of Agriculture.

The study was concerned with coverage and reporting error as found in the match of the 1968 pretest mailing list and the June 1967 Enumerative Survey Sample farms in Crowley and Otero Counties, Colo., and 15 farms in Sumter County, S.C. Report forms and listing sheets from the June 1967, survey for area sample segments in the full-coverage counties were obtained from SRS.

The results were as follows: 26 of the 28 June 1967 survey farms in Colorado were found on the 1968 pretest mailing list. The 26 farms accounted for about 94 percent of the cropland harvested and about 98 percent of the total value of products sold that were reported on the Colorado survey forms. An office check was first used in the analysis of these results and then a field check was made on "suspected missed farms." A second office check was then made to account for the remaining

**Table 7. CAPE 4: Results of Match of SRS June 1967 Enumerative Survey Sample File Against 1968 Census of Agriculture Pretest Mailing List: Crowley and Otero Counties, Colo., and Sumter County, S.C.**

Item	Colorado					South Carolina	
	Crowley County <sup>1</sup>	Otero County		Total		Sumter County	
		Office match results	After field check	Office match results	After field check	Office match results	After field check
Total in study:							
Number of farms .....	6	22	22	28	28	<sup>2</sup> 15	13
Acres in place .....	3,370.0	2,574.4	2,574.4	5,944.4	5,944.4	720.5	717.5
Acres of cropland .....	622.7	1,507.4	1,507.4	2,130.1	2,130.1	283.0	283.0
Total value of sales <sup>3</sup> .....	\$29,000	\$424,500	\$424,500	\$453,500	\$453,500	\$121,400	\$118,650
Matched:							
Number of farms .....	6	15	20	21	26	<sup>2</sup> 8	9
Acres in place .....	3,370.0	1,634.4	2,359.4	5,004.4	5,729.4	589.8	599.9
Acres of cropland .....	622.7	1,186.4	1,373.4	1,809.1	1,996.1	228.4	238.4
Total value of sales <sup>3</sup> .....	\$29,000	\$380,500	\$417,000	\$409,500	\$446,000	\$105,650	\$107,025
Percentage matched:							
Number of farms .....	100.0	68.2	90.9	75.0	92.9	<sup>2</sup> 53.3	69.2
Acres in place .....	100.0	63.5	91.6	84.2	96.4	81.8	83.6
Acres of cropland .....	100.0	78.7	91.1	84.9	93.7	80.7	84.2
Total value of sales <sup>3</sup> .....	100.0	89.6	98.2	90.3	98.3	87.0	90.2

<sup>1</sup> All 6 cases in Crowley County were matched in the initial office check.

<sup>2</sup> One farm for which the census TVP could not be determined was excluded.

<sup>3</sup> "Total value of sales" as defined for the SRS Enumerative Sample Survey includes government payments in addition to items included in census TVP.

"suspected missed farms" under different identification on the pretest mailing list.

All six cases in Crowley County were matched in the initial office check, which called for no field followup. Fifteen of the 22 Otero County sample cases were matched in the initial office check, while 5 of the suspected missed farms were accounted for in the field followup and final office check. These five cases were found either under a different name provided at field check or under a similar sounding name with different spelling.

The totals for the June 1967 survey cases missed in Sumter County were somewhat lower in the four characteristics measured (number of farms, acres in place, cropland, and total value of sales) than those in the two Colorado counties. The comparisons of the percentages indicated, however, that the survey farms not included in the mailing list were small ones. This was consistent with the Colorado findings.

Table 7 contains detailed information on the matched cases in both States.

#### CAPE 5: Pretest-ASCS Match

The purpose of this study was to evaluate the completeness of coverage in the pretest of farms in the full coverage counties, and to determine the desirability of taking steps to make fuller use of the ASCS county mailing lists in the preparation of the mailing list for the 1969 Census of Agriculture.

ASCS lists were not used for Colorado for the construction of pretest mailing list, so for this study ASCS county mailing lists were obtained for Crowley and Otero Counties, Colo. The ASCS lists for these counties were matched against the pretest mailing list. A field check was done on a sample of the 414 unmatched cases in order to determine whether they were in active operation in 1967. This same sample was matched against IRS index files for 1966 and 1967 tax returns; the results are shown in table 8. The cases reporting business returns for 1966 or 1967 were then matched against the index files for the 1965 IRS returns; the results are shown in table 9.

**Table 8. CAPE 5: ASCS Farms Not on Pretest Mailing List for Colorado Full-Coverage Counties, by IRS Filing Status for 1966 and 1967**

IRS filing status	Number of farms by cropland harvested <sup>1</sup>	
	200 acres and over	Less than 200 acres
Total .....	24	76
Business return for operator in 1966 or 1967 .....	22	62
1966 <sup>2</sup> .....	21	54
1967 only .....	1	8
Nonbusiness return only for 1966 or 1967 ..	—	4
No return located .....	2	10

<sup>1</sup> Cropland harvested per ASCS records.

<sup>2</sup> If a 1966 business return was located, the 1967 file was not searched.

It was concluded from this study that the IRS coverage appeared to be considerably better than indicated by the initial results of the ASCS match for the two Colorado counties.

**Table 9. CAPE 5: ASCS Farms in Colorado Full-Coverage Counties Making Business Returns to IRS for 1966 or 1967, by Filing Status for 1965**

IRS filing status	Number of farms by cropland harvested <sup>1</sup>	
	200 acres and over	Less than 200 acres
Total .....	22	62
Business return for 1966 .....	21	54
Business return for 1965 .....	19	44
Nonbusiness return for 1965 .....	1	4
No 1965 return located .....	1	6
Business return for 1967 only .....	1	8
Business return for 1965 .....	—	—
Nonbusiness return for 1965 .....	1	6
No 1965 return located .....	—	2

<sup>1</sup> See notes for table 8.

#### CAPE 6: Check on the Quality of Reporting of Physical Location

Because the address on the agricultural mailing labels did not always correspond to the actual physical location of the farm, it was important that the farmer indicate the proper location. The purpose of this project was to provide a quality check on the reporting of the location item. The study was conducted in Colorado on a sample basis.

By inspection of the post office service areas in Crowley and Otero Counties, Colo., Route 1 in Fowler, Colo., was selected for the test. Fowler is in Otero County; however, Route 1 (out of the Fowler Post Office) serves patrons in Otero, Crowley, and Pueblo Counties. Thirteen respondents were selected who had pretest mailing list addresses on Route 1. Eight reported crossline acreage and five reported acreage in only one county. Actual location of the acreage reported was then determined by personal interview. In the case of discrepancies (regarding location or acreage) between the pretest report and information obtained by personal interview, the interviewer was instructed to make a judgment about the situation and then make whatever adjustments were needed. Three cases needed adjustment in acreage.

In all 13 cases, land was located in the county of principal agricultural activity reported in section 3 of the pretest report form. In one of the 13 cases, the county of principal agricultural activity changed as a result of the personal interview. This happened because of the respondent's misinterpretation of "Land used for agricultural activity" in section 2. His report included only cultivated land and his response in section 3 on his form was consistent with the misinterpretation. (See respondent number 13 on table 10.) A similar mistake was made on one other form; however, the error was not sufficient to change the county of principal agricultural activity. (See number 7 on table 10.) Respondent number 12 actually

reported some acreage incorrectly, although this error had no effect on the location of the principal county. Further information concerning the 13 cases is included in table 10.

Due to the results of this small sample study, it was decided that it was not necessary to conduct CAPE 6 on a larger scale. The sample cases chosen were specifically picked as examples of problem cases. Such a small error was found—differences of 6.3 percent, 6.8 percent, and 10.6 percent in Otero, Crowley, and Pueblo Counties, respectively—that it was realized that this particular problem would not cause significant difficulty.

### POST OFFICE CHECK

A final test, a post office check, was conducted in November 1968 in 27 post offices in the three full-coverage counties that had been included in the January 1968 pretest. The individual post offices were sent 5"x8" white cards with the names and addresses of all those on the pretest mailing list who fell within their jurisdictions. Post office personnel then checked these cards for correctness of names and addresses, duplications, and the possibility of nonagricultural operations. They added blue cards for any operations which they considered agricultural that had been missed.

The post offices reported 832 suspected agricultural operations missed in the pretest. Nineteen of them were duplicates; i.e.,

they were reported on more than one blue card. In a Bureau check of the 813 remaining blue cards, 96 were found on the ASCS list for Colorado and 31 on the population census dress rehearsal list and the tenant search list for South Carolina. This then brought the total number of possibly missed operations reported in the post office check to 686, of which 283 were in Sumter County, 91 in Crowley County, and 312 in Otero County.

On January 6, 1969, these 686 possible farm operators were sent report forms concerning agriculture operations in 1968. A reminder was sent on January 13, and a followup letter on February 4.

Of the 686 forms sent out, 414 were returned to the Bureau of the Census. The returned report forms were classified into seven groups:

1. **Active farms.**—There were 131 returns for "good farms," i.e., places that met the census definition of a farm (10 acres or more and a total value of production (TVP) of at least \$50, or less than 10 acres and a TVP of at least \$250). They accounted for 46 percent of the returns in Crowley County, 36 percent in Otero County, and 20.4 percent in Sumter County. Of the "good farms," 32 reported having begun operation after 1965 and could be classified as "births." This left 99 farms that should have been on the pretest mailing list. Returns for these 99 were taken to the IRS centers and

Table 10. CAPE 6: Location and Acreage as Reported in Section 3 of Pretest Questionnaire and as Found in Field Check for 13 Farm Operations Served by Post Office, Route 1, Fowler, Colo.

County and operator identification	(Acres)					
	Otero County		Crowley County		Pueblo County	
	Reported in pretest	Field check results	Reported in pretest	Field check results	Reported in pretest	Field check results
Total .....	1,950	1,827	1,100	1,030	7,075	7,826
Otero only						
1 .....	300	300	—	—	—	—
2 .....	296	296	—	—	—	—
3 .....	157	156	—	—	—	—
Pueblo only						
4 .....	—	—	—	—	100	100
5 .....	—	—	—	—	70	71
Otero and Pueblo						
6 .....	204	204	—	—	70	70
7 .....	320	320	—	—	<sup>1</sup> 2,300	2,500
8 .....	160	160	—	—	90	90
9 .....	40	40	—	—	120	120
10 .....	87	70	—	—	40	40
11 .....	281	281	—	—	4,160	4,160
Otero and Crowley						
12 .....	105	0	800	905	—	—
Crowley and Pueblo						
13 .....	—	—	300	125	<sup>1</sup> 125	675

<sup>1</sup> Respondent reported only cultivated acres in pretest questionnaire.



checked against the list of tax returns for 1966 and 1967. Results of this check were as follows:

(a) Of these 99 cases, 42 were found with a 1040F schedule for 1967 only, 14 had a nonbusiness return only, 13 had no return at all, and 30 were not located.

(b) Of those which had a nonbusiness return only or had no return at all 5 were in Crowley County, 10 in Otero County, and 12 were in Sumter County. Of those reporting "year began," 8 began operations between 1960 and 1965, 3 between 1950 and 1959, and 5 before 1950.

(c) There was not enough time to search for the other 30 cases, all of which were small operations. They represented a total value of sales of \$106,806, and contained 7,884 acres of land, of which 728 acres were reported as harvested cropland. The TVP ranged from less than \$250 to \$30,000, with nine farms reporting more than \$2,500.

**2. Nonfarms.**—Approximately one-half the returns consisted of cases for which a note or analysis of the data indicated that they did not meet the census definition of an agricultural operation. In Crowley County the rate was 31.7 percent; in Otero County, 53.6 percent; and in Sumter County, 50.3 percent. The predominant reason for this classification was that the respondent owned sufficient land to have a farm but did not carry on any agricultural operations. This accounted for 40 percent of the out-of-scope cases in Crowley County, 32.6 percent in Otero County, and 42.6 percent in Sumter County. The next largest category was respondents who had no land. This accounted for another 18 percent. Landlords and those who were no longer farming constituted another 26.8 percent. The rest had too small an operation to be considered a farm, or had a house lot only, or were employees.

**3. Out of county.**—These were cases in which the principal operation was not located in one of the three pretest counties. They resulted from post office delivery areas that covered more than one county.

**4. Possible farms.**—These were returns on which acreage was indicated but which contained no other information.

**5. Incomplete.**—These were forms that were impossible to classify because they lacked any usable information.

**6. Duplicates.**—There were 13 duplicates of cases on the original mailing list found in the returns. They were found as a result of notes or of a different address reported by the respondent than that indicated in the mailing label.

**7. PMR's.**—These were forms returned by the post offices as undeliverable because of death, moving, etc.

In addition, of the 686 possible agricultural operations, there were 17 that, before the mailout, were considered possible duplicates of operations already on the mailing list. The returns on these cases were evaluated as to whether they really were duplicates. Of the 17 cases, seven report forms were returned: Two farms were not in the county, one case was a partnership, one operator had sold his place, one had taken over in 1968, one had no land, and one form was for part of a reported farm. No new farms were reported by this group.

There were 99 farms found in the post office check that had not been on the pretest mailing list. This gave an overall increase in coverage of 4.8 percent. The increase, however, was only 2.4 percent for those farms with a total value of products sold of more than \$2,500. Without the post office check, the mailing list alone covered about 91 percent of the farms in Colorado and 84 percent in South Carolina. After the post office check, these percentages rose to almost 98 percent in Colorado and 87 percent in South Carolina.

## QUESTIONNAIRE TRIAL

A test referred to as the "Questionnaire Trial" or "Dress Rehearsal" was conducted in January 1969. The intent of the test was to determine whether any unforeseen problems would arise if the standard report form (A1), as then conceived, was used for the 1969 Census of Agriculture.

Using the A1 agriculture report form only, the trial covered 4,763 farmers in the 48 contiguous States, excluding South Carolina and Colorado (which had been in the 1968 pretest), and in Hawaii. Farms with sales of \$2,500 or more in a sample of ED's (enumeration districts, as defined in the 1964 Census of Agriculture) were included. The trial avoided cases already covered in the 1969 precensus for the agriculture census (see chapter 3, page 26).

An instruction leaflet was included with each A1 report form mailed. Unlike the procedure used for the enumeration, the cover letter and instruction leaflet were separate. (For the 1969 census, the cover letter appeared on the front of the leaflet.) The A1 was buff (to reduce the glare for those who would do the manual editing) and the print was in red and black ink. The red print was used to give emphasis to certain parts of the A1 to make it easier for the respondent to place his answers in the appropriate spaces.

The same type of envelope used for the 1968 pretest mailing was again used for the mailing of the A1 for the Questionnaire Trial. The initial mailing of the A1 report form was January 6, 1969. A reminder card was sent January 13, 1969, to all recipients of the A1, requesting that the report form be returned no later than January 31, 1969. A followup letter was sent February 5, 1969, to all those who had not responded to the initial mailing—a total of 2,219 farmers.

A 60-percent return after only one followup had been projected. That return would provide 3,000 to 3,500 returns, which was considered a large enough number for analysis to determine the effectiveness of the A1 report form. By January 16, 1969, 200 "landlord only" and postmaster returns (PMR's) had been received, and as of January 22, 1969, before followup, 1,789 reports for active farms, 124 PMR's, and 12 pieces of correspondence had been received by the Census Bureau. The total number of responses received after one followup was 3,504, or 73.6 percent. This total included 3,291 A1's, or 69 percent, and 165 PMR's and 48 pieces of correspondence.

The Questionnaire Trial indicated that the A1 report form needed only minor alterations before it could be used for the 1969 Census of Agriculture.

The returns for the trial were processed by the Bureau in Washington for analysis. These returns were then used as a test set of report forms for the census computer processing specifications and procedures.

### LANDLORD-ONLY STUDY

A sample of landlords who reported in the 1965 Sample Survey of Agriculture that they owned land but did not operate a farm was selected for a study. Landlords without agricultural operations were referred to as "landlords only." This study, therefore, was entitled the Landlord-Only Study and was conducted as part of the Questionnaire Trial in January 1969. The questions for the Landlord-Only Study appeared in the Questionnaire Trial report form. The primary purpose of the study was to determine the extent to which the Bureau of the Census might expect landlords without agricultural operations to report in the 1969 Census of Agriculture as though they were farmers.

The first step in the sample selection was to identify all landlords who still owned the rented land in question and answered "No" to the question "Were you personally operating a farm at any time during the year 1965?" A sample of 271 landlords was selected from a total of 1,660 nonoperating landlords.

As the Questionnaire Trial report forms were received in Washington, those which pertained to the "Landlord-Only Study"—202 report forms returned in time to be included in an analytical study—were initially screened into five groups:

1. Landlords only who had completed sections 1 and 38 only.
2. "Probable landlords" who had completed most of the sections or parts of the sections in such a way that they could not be classified definitely as farmers or landlords on the basis of a first review of information on the report form. These respondents either had not followed instructions about the sections they were to complete or had provided conflicting answers to key questions in section 1.
3. Farm operators who had only part or none of their land rented out and who engaged in agricultural operations.
4. Returns on which insufficient information was given.
5. Others, including report forms returned by the post office as undeliverable and those from respondents who had sold their land or who indicated the owner was deceased.

The number and percent in each category are shown below:

Category	Number	Percent
Total returned . . . . .	202	100.0
Landlords only . . . . .	72	35.6
Probable landlords . . . . .	44	21.8
Farm operators . . . . .	19	9.4
Insufficient information given . . .	10	5.0
Others . . . . .	57	28.2

These cases underwent a technical review. The basic question which had to be answered was how the Bureau could determine the difference between a farm operator and landlord-only. As a result of the technical review, the characteristics of landlords were defined in such a way that a reasonable determination could be made as to the proper classification. This enabled the Bureau to make meaningful changes in computer specifications so that a high proportion of these respondents and similar ones could be classified correctly during the data processing for the census.

Eighty percent of the category of probable landlords were determined to be "landlords only" after the technical review and after correspondence. However, when these were classified in the original runs, only 25 percent were classified as "landlords only." This meant that under the edit procedures originally set up for the agriculture census, about 22 percent of the respondents who were the "landlords only" would have been classified as farm operators in the census.

There were nine in-scope farms in the 44 probable cases; all of them were classified as farms by the format run and computer edit test. The figures for the "probable landlords" after technical review and correspondence are shown in table 11.

Forty-five respondents from the 202 forms analyzed would have been classified as farm operators by the original computer edit; 17 of them were in fact landlords only.

Of the 107 landlord-only respondents in the sample, 67 percent followed instructions correctly; that is, they completed only sections 1 and 38 of the A1 report form.

The "Landlord-Only Study" was considered successful because it indicated that the report form to be used for the 1969 Census of Agriculture would record nonoperating landlords correctly, although changes in the computer programs were needed in order for the records to be interpreted correctly.

Table 11. Classification of Probable Landlords After Technical Review

Category	Total		No correspondence needed		Correspondence needed	
	Number	Percent	Number	Percent	Number	Percent
Total . . . . .	44	100.0	26	59.1	18	40.9
Landlords only . . . . .	35	79.5	23	65.7	12	34.3
Farm operators . . . . .	9	20.5	3	33.3	6	66.7

## KEY DATES FOR PLANNING OPERATIONS

Activity	Completion date		Activity	Completion date	
	Scheduled	Actual		Scheduled	Actual
Pretest, January 1968			Precanvass, Phase II		
Mailout . . . . .	1/2/68	1/2/68	Mailing list development, merging SSA, IRS, and 1967 economic census files . . . . .	11/1/68	11/1/68
First followup . . . . .	1/31/68	1/31/68	Matching merged file with Phase I data to eliminate duplicates . . . . .	12/3/68	12/5/68
Second followup . . . . .	2/28/68	2/27/68	Report form sent to printer . . . . .	9/1/68	8/22/68
Third followup . . . . .	3/27/68	3/25/68	Report form received from printer . . . . .	10/1/68	9/23/68
Fourth followup . . . . .	4/17/68	4/27/68	Mailout . . . . .	1/2/69	1/2/69
Fifth (last) followup (certified mail) . . . . .	5/8/68	5/9/68	First followup . . . . .	1/28/69	1/28/69
Receipt and check-in of returned reports . . . . .	6/27/68	6/28/68	Second followup . . . . .	2/25/69	2/25/69
Check-in punch . . . . .	7/1/68	7/3/68	Third followup . . . . .	3/25/69	3/25/69
Editing and coding . . . . .	7/2/68	7/5/68			
Card punching (data punch) . . . . .	9/13/68	9/13/68			
Tabulation . . . . .	9/27/68	9/27/68			
Precanvass, Phase I			Check-in of returned forms and followup (including correspondence) . . . . .		
Mailing list development:			Prepunch processing of reports . . . . .	4/30/69	4/30/69
Assembling A1 report forms from 1964 census files (52,900 A1's punched and verified) . . . . .	5/15/68	5/15/68	Punching data . . . . .	7/1/69	5/2/69
Large-company list . . . . .	6/30/68	7/19/68			
Report form sent to printer . . . . .	6/1/68	6/7/68			
Report form received from printer . . . . .	7/1/68	7/23/68			
Mailout . . . . .	8/30/68	8/30/68	Questionnaire Trial, January 1969		
First followup . . . . .	9/24/68	9/24/68	Report forms to printer . . . . .	10/15/68	11/4/68
Second followup . . . . .	10/15/68	10/15/68	Report forms received from printer . . . . .	11/15/68	12/5/68
Third followup . . . . .	1/2/69	1/2/69	Mailout . . . . .	1/6/69	1/6/69
Check-in of returned forms and followup (including correspondence) . . . . .	12/13/68	12/13/68	Reminder card mailout . . . . .	1/13/69	1/13/69
Prepunch processing of reports . . . . .	9/15/68	11/1/68	Followup letter mailout . . . . .	2/4/69	2/5/69
Punching data . . . . .	11/1/68	11/1/68	Final cutoff . . . . .	2/14/69	3/13/69