

CHAPTER 2.

Planning and Preliminary Operations

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PLANNING

Initial Considerations

Planning every census of agriculture is an exercise in balancing conflicting needs. American agriculture and related industries account for billions of dollars of the Nation's gross national product (GNP) and feed not only its entire population, but millions of people around the world. Anyone wanting a clear picture of the United States, or of virtually any part of it—whether geographic, political, economic, or demographic—will need information on agriculture.

The core of American agriculture is farm and ranch production. Farm and ranch operators, and their counterparts in agriculture-related industries, must supply the information data users want. Most of these farmers and businessmen see better ways to spend their time than filling out questionnaires from the Government, particularly when asked certain information normally supplied only to the Internal Revenue Service (IRS) for tax purposes, and they have little patience with requests for detailed information. Thus the first major compromise in any census planning lies between the demands from data users for more and more information, and the response burden that can reasonably be imposed on data suppliers.

Once collected, the data are processed and tabulated and, again, the more detailed the tabulations and cross-tabulations, the better for data users. Unfortunately, tabulation consumes both money and time, and the supply of both is limited. Available funding restricts the volume and detail of tabulations, as does the need to publish data on a *timely* basis. With unlimited money and time, more detailed and complex—and hence more revealing—tabulations and cross-tabulations could be done, but *obsolete* statistics are of little use, so further compromises must be made to make valid statistical data available to users within a reasonable time. This equation is further complicated by the Census Bureau's legal responsibility to protect the confidentiality of the data respondents supply to the census. This responsibility embraces not only the protection of the information on the

individual report forms—that is, restricting access to those forms—but also the prevention of information disclosure in the published statistics that might make possible identification of an individual operation or operator.

Preliminary Planning

The 1982 Census of Agriculture, like that for 1978, was carried out after a shortened (4 years instead of 5) intercensal period, to bring the reference years of the economic and agriculture censuses into conjunction. Conducting the censuses simultaneously enabled the Bureau to combine some planning, preparatory, and operational functions while obtaining a more complete statistical picture of the American economy than would be possible with censuses covering different reference years. There was, therefore, close coordination between the Agriculture Division and the other economic area divisions in drawing up the general plans for the censuses.

Planning the 1982 census comprised two related efforts: (1) general preparations and operations for all the censuses that could be coordinated to obtain maximum efficiency and economies of scale, and (2) specialized facets of the census requiring concentration on specifically agriculture-oriented activities. The former included standardization of address labels, report form check-in, handling of correspondence, use of an interactive system for keying data, and some followup and publication activities. The more specialized planning areas included identification of agricultural operations; determination of census report form format, design, and content; publicity for the census; and editing, most data processing, and tabulation.

Early plans for the census envisioned little or no change in the basic design of the "sample" and "nonsample" report forms used for 1978—a limited number of items would be requested of *all* respondents while selected data would be asked of only a 20-percent sample. This kept response burden relatively low while enabling the Bureau to collect data on certain sensitive, or difficult, items from a sample large enough to provide reliable county-level estimates. The Bureau anticipated further reductions in response burden by the adoption of "regionalized" report forms (see "Report Form Content and Format" below).

The 1978 census included a farm and ranch identification survey and an area-segment sample survey. The former was carried out to help prepare the mail list and was used to determine whether certain "doubtful" addresses represented farm operations according to the census definition. The area-segment sample survey was conducted just prior to the initial census mailout and was designed to provide State-level statistical estimates of the number and characteristics of farms not on the census mail list. Early plans for the 1982 census included both operations; budget constraints, however, eliminated the area-segment sample, but the farm and ranch identification survey (described in Ch. 3, "Preparatory Operations") again was part of the mail list preparations.

INTEGRATION OF THE AGRICULTURE AND ECONOMIC CENSUSES

Carrying out simultaneous agriculture and economic censuses provided great advantages to data users and the Bureau, but also presented certain administrative and operational problems for the Bureau. Prior to 1982, the censuses' staggered reference years allowed the workload for the operation to be distributed over a considerable period of time—no minor point when only limited resources are available. With concurrent censuses, the Bureau had to obtain maximum economies to publish data in a timely manner.

Compilation of mail lists and preparation of report forms and mailing packages for the various censuses were independent operations. For the 1982 Census of Agriculture, the mail list of multiunit agricultural operations was drawn for the first time from the Bureau's standard statistical establishment list (SSEL).¹ The Bureau introduced barcoded address labels to facilitate check-in by machine in the 1978 agriculture census and extended their use to the economic censuses for 1982. The address label format for all 1982 censuses was standardized, although the agriculture census label information was modified slightly to accommodate the different identification numbering system. More extensive use of form letters and paragraphs in place of individual "tailored" responses occurred; this usually took the form of specialized paragraphs that could be inserted into a form letter to respond to a specific inquiry or situation. The followup letters, i.e., those sent to nonrespondents in routine mailings, were written specifically for each census. However, the followup dates were coordinated so that economic and agriculture census mailings were done at the same time to take advantage of processing economies and reduced postal rates.

Staffing was one area in which simultaneous, or nearly simultaneous, censuses could result in significant economies. For the 1982 censuses, a single staff checked in report forms for all censuses. Similarly, the same staffs handled correspondence for both censuses.

The introduction of interactive computer systems (see Ch. 6, "Data Processing," for more information on these systems) in the place of the slower and more costly microfiche record system enabled the Bureau to place on line computer research of records of individual report forms for display and review.

While the content of the publications for the censuses differed, the Bureau was able to standardize the process of preparing the reports themselves for printing. The table image processor system (TIPS) was first used as part of the publication program of the 1977 Economic Censuses. The TIPS photocomposed (in conjunction with the Bureau's computer output to microfilm production (COMp80) device, and the Government Printing Office's (GPO's) VideoComp system) large numbers of tables for the census reports. The Bureau completely redesigned TIPS for the 1982 censuses and adopted the new system, called TIPS II, for use in the agriculture and economic censuses. (For details of the TIPS II system, see Ch. 6, "Data Processing.")

REPORT FORM CONTENT AND FORMAT

The Secretary of Commerce has the official responsibility for determining the content of all census report forms, but delegates this authority to the Director of the Bureau of the Census. The

¹A computerized name and address file of all known multi- and single-establishment employer firms in the United States. The Bureau uses the employer identification (EI) number and the SSEL file number to identify parent companies, subsidiaries, and their establishments.

actual design of the report forms for the 1982 Census of Agriculture was done by the Bureau's Agriculture Division, assisted by the Forms Design Branch of the Administrative Services Division, and with the advice of the Bureau's Census Advisory Committee on Agriculture Statistics and major data users in the public and private sectors. (For a list of member organizations, see p. 8 below.)

When designing report forms for use in its censuses or surveys, the Bureau must decide whether particular items suggested for inclusion meet high-priority data needs, and whether respondents can answer each item accurately. There are also limits on both the number and kind of questions that can be asked with a reasonable certainty of obtaining the information requested. Response to the census is required by statute, but the Bureau does not use the coercive powers of the law. The legal requirement primarily denotes the importance of the census. Not only would the application of the authority to try to compel response probably be unproductive in the specific case or cases involved, but it also undoubtedly would have unfortunate consequences in terms of the public's image of the Bureau and inclination to cooperate in other census activities.

Design of the 1982 Census of Agriculture report forms began with consideration of the forms used for the 1978 census, and requests from data users for items to be added to the census. The 1978 report forms had been very successful—obtaining generally favorable operator reaction and response—and the Bureau decided to adopt the same overall design for the 1982 enumeration, with "nonsample" and "sample" forms. Most of the 1978 census items were retained on the 1982 forms, with the exception of questions on direct sales of products for human consumption, foreign ownership of farm land, and the number of pieces of selected kinds of machinery built in the 5 years preceding the census.

While the general kinds of information requested for 1982 remained similar to those asked for in the 1978 census, the Bureau modified the format of the report forms by adopting "regionalized" forms—separate versions of the sample and nonsample report forms developed for each of 12 geographic regions of the United States. All had identical formats, consisting of a core of standardized nonsample and sample inquiries asked of all agricultural operators in all regions (e.g., acreage, total value of sales, operator characteristics, etc.), and a set of production, inventory, and sales items (e.g., field crops, fruit trees and nuts, etc.) that applied specifically to agricultural operations within each region. Different color ink shadings and form numbers were used to facilitate sorting and processing. The new form numbering system adopted was similar to that used in the economic censuses, modified for agriculture census use. The prefix "82-A" designated the report form as a 1982 Census of Agriculture questionnaire and was followed by four digits, the first two identifying the report form as a nonsample (01), sample (02), or "must" (03) form, and the last two the geographic region covered by that particular form—01 through 12. Respondent burden and irritation were reduced because it was no longer necessary for respondents to go through lists of crops and livestock that, while important in some parts of the country, might not be significant in others.

The Bureau tested the proposed report form design and wording in July 1981, in a national mailing involving approximately 4,800 addresses. The results were used to refine the design prior to the finalization of the content.

Descriptions of the changes in the general content of the report forms are provided in appendix H, together with a facsimile of a representative report form.

CONSULTATION ON THE CENSUS

General Information

The Bureau of the Census is, essentially, a statistical service agency that collects, tabulates, and publishes data for use by others. Thus, one of its primary concerns is determining which data are needed. Inasmuch as the data the Bureau collects must be supplied by individuals and/or organizations *outside* the Bureau itself, a second major concern must be the ability, and the inclination, of respondents to provide the information desired.

The Bureau maintains regular contact with data users and respondents through several permanent advisory committees, a varying number of temporary consultation groups, and meetings with data users. For the 1982 Census of Agriculture, the Bureau's principal sources of regular contact with the data users and respondents were the interagency task force formed to review and coordinate Federal agency data needs, and the Bureau's Census Advisory Committee on Agriculture Statistics.

Interagency Task Force

Prior to the 1982 Census of Agriculture, the Office of Management and Budget (OMB) established for the Bureau an interagency task force of all Federal agencies that make direct or indirect use of census of agriculture statistics. This task force coordinated the data needs of Federal agencies with the Census Bureau. The task force was reconstituted early in 1980 and consisted of the following agencies:

- U.S. Department of Agriculture
 - Agricultural Cooperative Service
 - Agricultural Marketing Service
 - Agricultural Stabilization and Conservation Service
 - Animal and Plant Health Inspection Service
 - Economic Research Service
 - Extension Service
 - Farmers Home Administration
 - Federal Crop Insurance Corporation
 - Federal Grain Inspection Service
 - Office of Minority Affairs
 - Office of Rural Development Policy
 - Packers and Stockyards Administration
 - Rural Electrification Administration
 - Soil Conservation Service
- U.S. Department of Commerce
 - Bureau of Economic Analysis
 - Small Business Administration
- U.S. Department of Energy
 - Energy Information Administration
- Environmental Protection Agency
 - Farm Credit Administration
- U.S. Department of the Interior
 - Bureau of Reclamation
- International Trade Commission
 - Office of Industries
- Library of Congress
 - Congressional Research Service

The task force met formally once, in January 1980, thereafter carrying out its work through individual meetings and correspondence. The Census Bureau asked member agencies to submit their recommendations and justifications for census data items by February 1981.

The task force was primarily concerned with content, but also considered the Bureau's 1982 tabulation plans and publication program. Individual members reviewed the 1974 and 1978 census publications and reported the specific tables each member's agency used in its own operations, so the Bureau could determine whether the tabulations shown should be retained, consolidated, or eliminated from the publications. The task force also recommended changes to the tabulations and/or table format.

The Census Advisory Committee on Agriculture Statistics

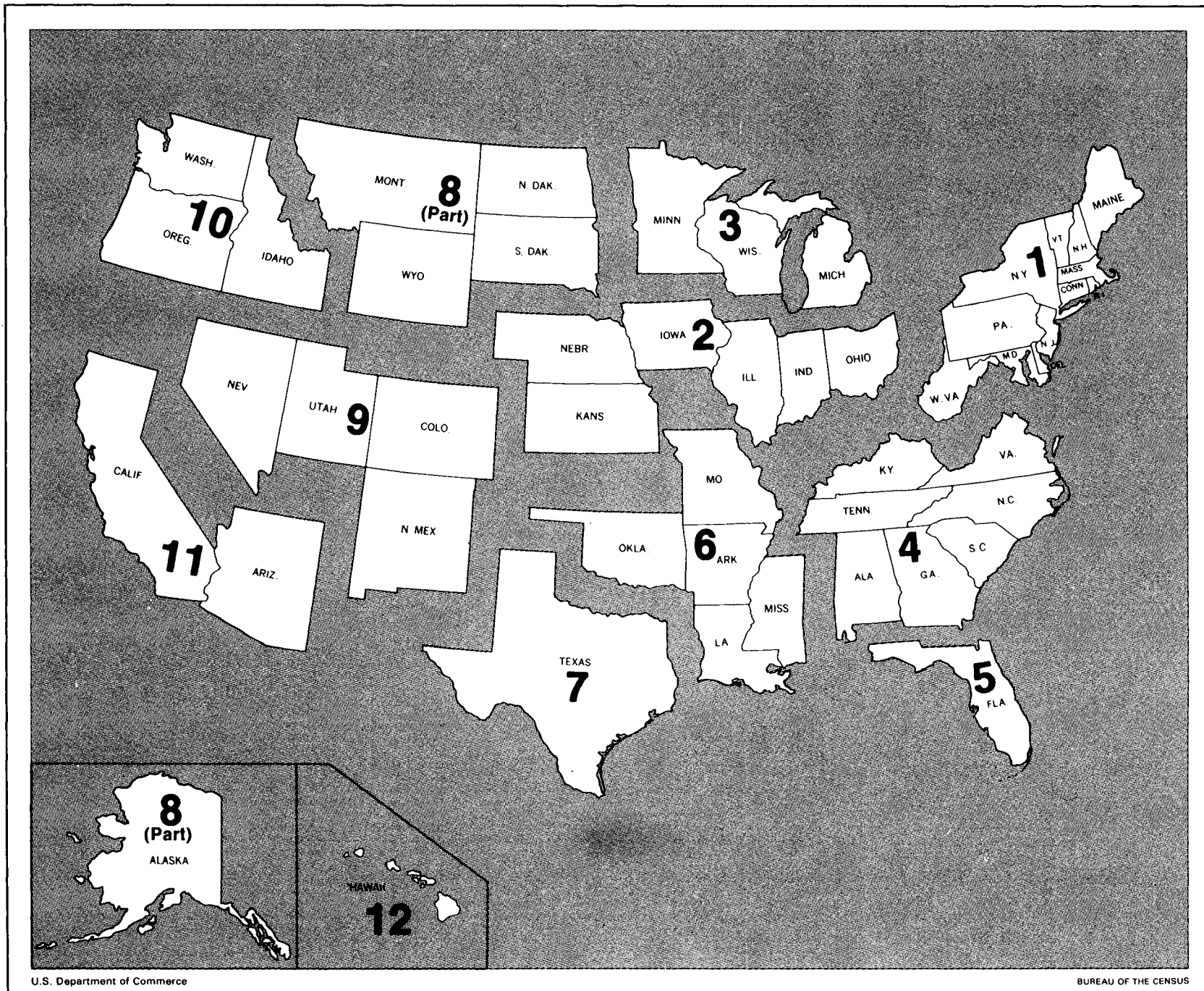
The Bureau obtained the charter for the permanent Census Advisory Committee on Agriculture Statistics in 1962. From 1940 through 1959, agriculture census advisory committees were assembled before each census and disbanded after the publication of the data; before 1940 any advice to the Bureau on the agriculture census was provided by a general advisory committee that reviewed all of the Bureau's statistical programs. The Committee served as the Bureau's primary contact with data users *outside* the Federal Government and offered recommendations on the content and format of report forms, the ability of operators to supply the data requested, general data-collection methodology, data tabulation, and publicity for the census. The Committee was composed of representatives of the following organizations:

- Agricultural Publishers Association
- American Agricultural Economics Association
- American Farm Bureau Federation
- American Feed Manufacturers Association
- American Meat Institute
- Association of Research Directors, Inc.
- Conference of Consumer Organizations
- Farm and Industrial Equipment Institute
- Federal Statistics Users' Conference
- Irrigation Association
- National Agricultural Chemicals Association
- National Agri-Marketing Association
- National Association of State Departments of Agriculture
- National Association of State Universities and Land-Grant Colleges
- National Council of Farmer Cooperatives
- National Farmers Organization
- National Farmers Union
- National Food Processors Association
- National Grange
- Rural Sociological Society
- U.S. Department of Agriculture
 - Statistical Reporting Service

For a list of the individuals who served on the Committee during the 1982 census period, see appendix C.

Meetings of the Committee are open and frequently are attended by observers from Statistics Canada, the Office of Management and Budget (OMB), the U.S. Department of Agriculture, the Bureau of Economic Analysis, as well as other Government agencies, private organizations, and members of the public. Outside observers and the general public may ask questions and offer statements or recommendations during a time set aside for that purpose at each meeting. The Bureau prepares and publishes minutes of each meeting, including Committee recommendations and the Bureau's responses.

States by Regions for the 1982 Census of Agriculture



U.S. Department of Commerce

BUREAU OF THE CENSUS

THE JUNE 1981 CONTENT TEST

Background Information

The Bureau conducts one or more tests of proposed report forms before the final designs are determined. Plans for the 1982 Census of Agriculture were to minimize changes in the overall format and content of the 1978 design. This was a direct result of the good reception the 1978 format received from respondents (the regionalization of the report forms involved little more than substituting the appropriate lists of crops common to their designated geographic regions for the general listing used in the 1978 questionnaire). Certain modifications were made to the format and wording of selected data items, some new items were added, and several others were dropped from the forms.

The Bureau completed preliminary design work on the basic report form in the spring of 1981. This form included all items the Bureau proposed to collect from a sample of agricultural operations; later a "nonsample" version of the form was produced by deleting the sample items from the basic design. The Bureau conducted the June 1981 content test to evaluate the following factors with respect to this preliminary design:

1. The effect of changes in the wording, sequence, and/or design of selected questions.
2. Respondent burden and quality of response for items not included in previous censuses.
3. Response rates compared to the 1978 census.
4. Reasons for nonresponse (respondents were asked to make suggestions to help simplify and clarify the questionnaire).
5. The effectiveness of the screening questions in the cover letter prompting a response from types of operators who usually had high rates of nonresponse.

Report Forms

The Bureau used two versions of the *sample* report form in the content test, the forms 81-A1 and 81-A2. Both forms were identical in length (six numbered pages) and general format to the 1978 sample form, and both were mailed to a sample of farms throughout the Nation (except Alaska and Hawaii). The A1 version was sent to a sample of farms in all States except Arizona and California, and contained the same crop listings for sections 2-8 (crops, vegetables, berries, etc.) as in the 1978 form. The A2 was used only for a sample of farms in Arizona and California and had prelisted in sections 2-8 crops and units of measurement found in those two States.

The principal changes in the content of the report forms were as follows:

Section 1: Land Ownership	An item was added asking acres rented from the Federal or State governments, or from Indian reservations.
Section 2: Cash Grains and Field Crops	General design was similar to 1978, but more crops, fruits, etc., were prelisted (for the 1982 census, the listings would include only crops, etc., common to specified geographic regions).
Section 4: Vegetables	
Section 6: Berries	
Section 7: Other Crops	
Section 8: Fruits and Nuts	
Section 9: Value of Crops	More detail on grain sold was requested; 1978 item on Government Commodity Credit Corporation (CCC) loans was moved to section 17.

Section 14: Sheep and Lambs Sold	Deleted "sales" from column heading, using "number sold" instead.
Section 17: CCC Loans and Custom-work	Item on CCC loans was moved from section 9.
Section 24: Interest (sample item)	This was a new section added for 1982.
Section 28: Value of Land and Buildings (sample item)	Item added on value of Federal, State, or Indian reservation land rented.

Both test report forms were 14" x 27" sheets, folded to 14" x 10 1/2", with six numbered pages. Identical in size, format, and layout, the only difference between the forms—other than the crop listings used in sections 2-8—was that the A1 version used black ink and a yellow shading on white paper stock, while the A2 used black ink and blue-green shading.

Sample Selection

The Bureau designed a sample containing 4,800 agricultural operations for the content test, drawn from the 1978 census files. The sample excluded farms and ranches (1) in Alaska and Hawaii, (2) that were in any of the 1978 follow-on surveys or the 1978 area segment sample survey, (3) with sales of \$250,000 or more, and (4) multiunit and "abnormal" ("abnormal" farms include agriculture research stations, farms operated by hospitals, Indian reservations, and the like) establishments. Selected nonfarm cases from the 1978 census were included in the sample to determine whether wording changes being tested might have an effect on the way nonfarmers on the list responded.

The sample consisted of three subsamples: (1) a national sample, (2) eight "cluster" counties, and (3) a list of cases with specific characteristics selected to test specific changes, primarily in the regional sections of the report forms. The national sample included approximately 3,100 cases randomly selected from the 1978 census farm list for each State. The "cluster" counties' sample consisted of about 1,400 addresses selected from the 1978 farm *and* nonfarm lists for the following eight counties:

Chester, PA	Marion, OR
Frederick, MD	Robertson, TN
Jackson, FL	Rush, IN
Kern, CA	Sussex, DE

The Bureau selected these counties for the cluster sample because they included a wide variety of agricultural operations. Addresses from the 1978 nonfarm list were included in the cluster counties' sample. Interviewers were to review the individual cases to determine if the wording or other changes in the report forms made any difference in whether addressees identified themselves as having agricultural operations.

The special-characteristics case sample included about 300 addresses drawn from the 1978 farm list. This sample was used to evaluate several areas of Bureau concern, including the regional crops listings on the form 81-A2, wording of the item on family-held corporations, and reporting of Federal, State, or Indian land and its value.

Mailout and Followup

Mailing packages—Each mailing package for the test consisted of the appropriate report form, a sheet of instructions, a cover letter (form 81-A1(L1)T), and a return envelope. The cover letter requested prompt response, and included a number of screening questions in case the addressee had not farmed in 1980, was deceased, or had sold the agricultural land.

Mailout and mail followup—The first mailout, on June 25, 1981, consisted of 4,363 A1-form packages and 411 A2-form packages. (The Bureau mailed 1,389 packages to addressees in the eight cluster counties [1,058 of these cases were farms in 1978 and 331 were from the 1978 nonfarm list].)

Within 3 weeks of the test mailing, the Bureau had received 1,364 responses, along with 164 postmaster returns (PMR's—packages returned by the Postal Service as undeliverable), yielding a response rate of approximately 32 percent. Respondents' addresses were matched to the content test mailing list, and 3,246 nonrespondent and PMR cases were remailed with a followup letter, form 81-A1(L2)T, on July 16. The A1(L2)T requested response and asked addressees for suggestions for improving the census for 1982.

Field interviews—In late August and the first week of September, personnel from Bureau headquarters and the Jeffersonville office interviewed 350 addressees in the eight cluster counties. They discussed the census report forms and instructions, problems encountered in completing the forms and respondents' recommendations, reasons for nonresponse, and so on.

Results

Response rates—At the time of the single mail followup, the response rate for the test (32.3 percent) was 4 percent higher than the comparable rate achieved for the 1978 census. When the test was closed out at the end of July, the response rate was 55.3 percent (representing some 2,650 cases, including PMR's), about 6 percent higher than at a comparable point in the 1978 census. The Bureau anticipated slightly higher response rates for the test due to (1) the use of a mailout envelope asking for response within 15 days (compared with a requested response within 6 weeks in the 1978 census), and (2) the exclusion of larger farms from the sample.

Processing—Respondents were asked to mail their completed forms to the Jeffersonville office. Upon receipt, the test forms were checked in and clerically edited. The clerical edit was concerned principally with determining whether the data on the forms were keyable and did not include an analysis of questionable entries. Selected data items from the report forms were hand tallied for analysis.

Analysis and results—There was no significant difference in the rates of response obtained by the two test report forms. The average time required to complete a report form was 67 minutes while the mean time was 45 minutes. Less than 10 percent of the respondents reported that they made use of the information sheet, and most reported that they consulted their records despite explicit statements in the instructions that "best estimates" for data were acceptable. The latter practice has a considerable impact on the time required to complete the report form. The Bureau was not able to determine the effect of the screening questions in the cover letter on the response rate, but many respondents used the "comments" section of the letter to explain their situations, which might have led to an increase in the clerical workload if similar screening material was used in the census.

Comments from respondents—Respondents' reactions to the report forms were generally favorable; they were gratified at the expanded use of prelisted crops and the Bureau's plans to regionalize these sections. Respondents were sensitive to questions involving finance, such as the sample sections on "Interest Expenses" and "Value of Land and Buildings."

Analysis of the quality of response obtained for specific items and/or sections of the report form suggested that some instructions on the forms and/or the information sheet needed clarification. This was particularly true with respect to sections requesting data on land owned or rented and financial information. Complete response was not received for information on land rented from the Federal or State governments, or from Indian reservations—only 47 percent reporting such land estimated its value. The Bureau subsequently deleted the request for the value of such land from section 25 (Value of Land and Buildings). Response to the crop sections was generally very good, and the Bureau went ahead with plans to use fully "regionalized" forms (i.e., with prelisted crops common to specified geographic regions) in the census.