

# CONTENTS

## Chapter 8. Census of Agriculture in the Outlying Areas

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	Page
Introduction .....	75
General Information .....	75
Historical background .....	75
Scope and legal authority .....	75
Guam and the U.S. Virgin Islands .....	75
General Information .....	75
Special arrangements .....	75
Farm definition and reporting periods .....	75
Preparations .....	75
Report forms .....	75
Maps .....	76
Farm lists .....	76
Training and reference materials .....	76
Staffing and training .....	76
Taking the Census .....	79
Enumeration materials .....	79
Methods of enumeration .....	79
Callbacks .....	79
Refusals .....	80
Controls and reports .....	80
Field review .....	80
Results .....	80
Data Processing .....	80
Introduction .....	80
Check-in and screening .....	80
Preliminary clerical review .....	81
Precomputer edit and data entry .....	81
Computer edit and tabulation .....	81
American Samoa and the Commonwealth of the Northern Mariana Islands.....	81
General Information .....	81
Special arrangements .....	81
Farm definition and reporting periods .....	82
Preparations .....	82
Report forms .....	82
Maps .....	82
Training and reference materials .....	82
Staffing .....	82
Taking the Census .....	83
General information .....	83
Enumeration methodology .....	83
Field review and quality control .....	83
Results .....	86
Data Processing .....	86

	Page
Field office operations .....	86
Precomputer edit and data entry .....	86
Computer processing .....	86
Publication Program.....	86

## INTRODUCTION

### General Information

**Historical background**—The United States carried out its first agricultural census of Guam in 1920 along with the decennial population census of that year, and the agriculture enumeration continued as part of the decennial effort through 1960. The United States purchased the Virgin Islands from Denmark in 1917, and conducted a special census that included agriculture that same year. The second census of agriculture in the islands was carried out in 1930, when the Federal Government incorporated the islands into the general decennial census program. In 1964, Title 13, United States Code, section 191(a) was changed to include both Guam and the U.S. Virgin Islands in the quinquennial censuses of agriculture. The 1987 census was the 11th such in these areas.

The Census Bureau's first agriculture enumeration in American Samoa was part of the 1920 Decennial Census program, and agricultural censuses have been carried out every 10 years since, in conjunction with the population and housing censuses. Farms in the Northern Mariana Islands were first enumerated for agricultural purposes as part of the 1970 Census of Population and Housing, but the agricultural data were published as part of the 1969 agriculture census publication program. As in the case of American Samoa, the agriculture census in the Northern Mariana Islands continued with the decennial population and housing census program, rather than as an integrated part of the quinquennial agriculture census. Title 13 was not changed to require all outlying areas to be included in the quinquennial censuses until 1986, so American Samoa and the Commonwealth of the Northern Marianas were omitted from the 1974 and 1982 agricultural censuses.

**Scope and legal authority**—Title 13, United States Code—Census, authorized the collection of agriculture data in the outlying areas. Section 142(a) directed that there be censuses of agriculture in 1979, 1983, and every fifth year thereafter; section 191(a) authorized the inclusion in the census of the U.S. Virgin Islands, Guam, the Commonwealth of the Northern Marianas, and other possessions and areas over which the United States exercises jurisdiction, control, or sovereignty. Section 191(b) stated that the Secretary of Commerce could use data collected by the Governors or other Federal officials (provided the data were collected in accordance with plans prescribed or approved by the Secretary) for censuses in any of these places.

## GUAM AND THE U.S. VIRGIN ISLANDS

### General Information

**Special arrangements**—In April 1987, the Director of Commerce for Guam, and in December 1987, the Commissioner of Agriculture for the U.S. Virgin Islands, signed

agreements with the Census Bureau for the censuses of agriculture in their respective jurisdictions. The Bureau agreed to provide special training as census project managers for representatives of each of the governments involved, and to provide report forms, training materials, and instructions for the census staffs. The territorial governments accepted responsibility for recruiting and training local field and office staffs, supervising appointments and payrolls, and local administrative matters.

The 1987 agriculture census on Guam was carried out in late February and March 1988, immediately before the 1987 Economic Censuses for the island, and in the Virgin Islands in July 1988, immediately after closing the economic enumeration there. (See App. E, Chronology of Major Census Activities.) The Agriculture Division conducted both the economic and agriculture censuses in the outlying areas, so that office space was used for both enumerations; in Guam, the Bureau established a census office in Tamuning, while in the Virgin Islands, the census office was in space lent by the Department of Economic Development and Agriculture in Charlotte Amalie, St. Thomas.

The Bureau began preparation for the 1987 censuses in the outlying areas early in 1985, when, in cooperation with the territorial governments, it developed a farm definition and started planning the censuses.

**Farm definition and reporting periods**—The 1987 censuses on Guam and in the U.S. Virgin Islands defined a farm as any place from which \$100 or more of agricultural products were sold, or normally would have been sold, during the census year. This differed from the 1982 definitions for both areas; for 1982, a farm on Guam was any place from which any crop, vegetable, or fruit was harvested or gathered, or on which there were livestock or a specified number of poultry on Census Day. The definition for the 1982 census in the Virgin Islands also required products harvested or gathered, as well as a minimum acreage, and specified numbers of (1) fruit trees, nut trees, or plants, or (2) livestock or poultry.

Reporting periods differed between the two areas. On Guam, the census collected inventory data as of the day of enumeration, while crop and livestock production, sales, and expense data were requested for the calendar year 1987. In the Virgin Islands, inventory data were asked as of the day of enumeration as well, but crop and livestock sales and production and expense data were for the 12-month period between July 1, 1987, and June 30, 1988.

### Preparations

**Report forms**—The Census Bureau designed the 1987 agriculture census report forms for Guam and the U.S. Virgin Islands in cooperation with the respective governments. The report forms—the form 87-A1(G) and form 87-A1(VI)—were similar in format, consisting of 21" x 14" white stock, folded to 10 1/2" x 14". The A1(G) had

printing in green ink, while the A1(VI) was printed and shaded in blue ink. Each requested data on the following topics:

- Land in agriculture
- Crops harvested during reference period
- Land use
- Livestock and poultry (inventory and number sold in reference period)
- Selected expenditures
- Equipment and facilities
- Operator characteristics

The A1(G) included an additional section requesting the pounds of fish caught, pounds sold, and total value of sales during 1987.

All the report forms were printed in English and included a section that served as the enumerator's record of the census interview, which the enumerator completed with information on the person who furnished the data in the form, any remarks, the address of the place, and the enumerator's signature and the date of enumeration.

**Maps**—The Bureau's Data Preparation Division (DPD) in Jeffersonville, IN, prepared a series of maps used by the outlying areas' census offices and staffs, using 1980 Census of Population and Housing maps for reference. Each census office received a set of maps that included a central office map of each area, crew leader maps, and enumeration district maps; all showed enumeration districts (ED's) and ED numbers, with the ED boundaries marked in heavy orange lines. Crew leaders checked each map for their area of responsibility and (1) familiarized themselves with the ED's, (2) checked the accuracy of his/her maps and the individual ED maps, (3) made any notations on the maps that might be needed to help the enumerators complete their assignments, (4) checked the size of each ED to make certain none was too large for a single enumerator to cover, and (5) identified places with special enumeration problems (such as farms split between two ED's).

**Farm lists**—The Bureau prepared lists of "special farms"—i.e., agricultural operations considered to be large farms in the local context—before the censuses on Guam and in the Virgin Islands. The agency assembled these lists using 1982 Census of Agriculture data and information from the local Departments of Agriculture to identify probable special farms. Special farms were any that had, or were believed to have had, 20 acres or more of land, or annual sales of agricultural products of \$500 or more. The special farms in each enumeration district (ED) were listed on the A2 Listing Sheet included in the A5 Record Book for that ED.

**Training and reference materials**—The Form 87-A25(G) and (VI) *Procedures Manual* and the Form 87-A20(G) and (VI) *Supervisor's Reference Manual* for Guam and the

Virgin Islands, respectively, served as the principal reference guides for organizing the census staffs and carrying out the enumeration. The A25 described the duties of the various members of the census staff and the operations of the census office, while the A20 explained the specific responsibilities of the census supervisors and the procedures for the field enumeration. The Bureau provided copies of the A20 guide to each supervisor and crew leader, together with the A15 *Enumerator's Training Manual* for use in training the enumeration staff. The enumerators themselves received the Form A10(G) or (VI) *Enumerator's Reference Manual*, which detailed the duties of an enumerator and gave specific instructions for conducting interviews and completing the required documents.

**Staffing and training**—The census staffs in the outlying areas were organized into a small field office staff, and the field enumeration staff. The census manager functioned as both the general supervisor for the census and the head of the census office. Staff composition in the respective areas was as follows:

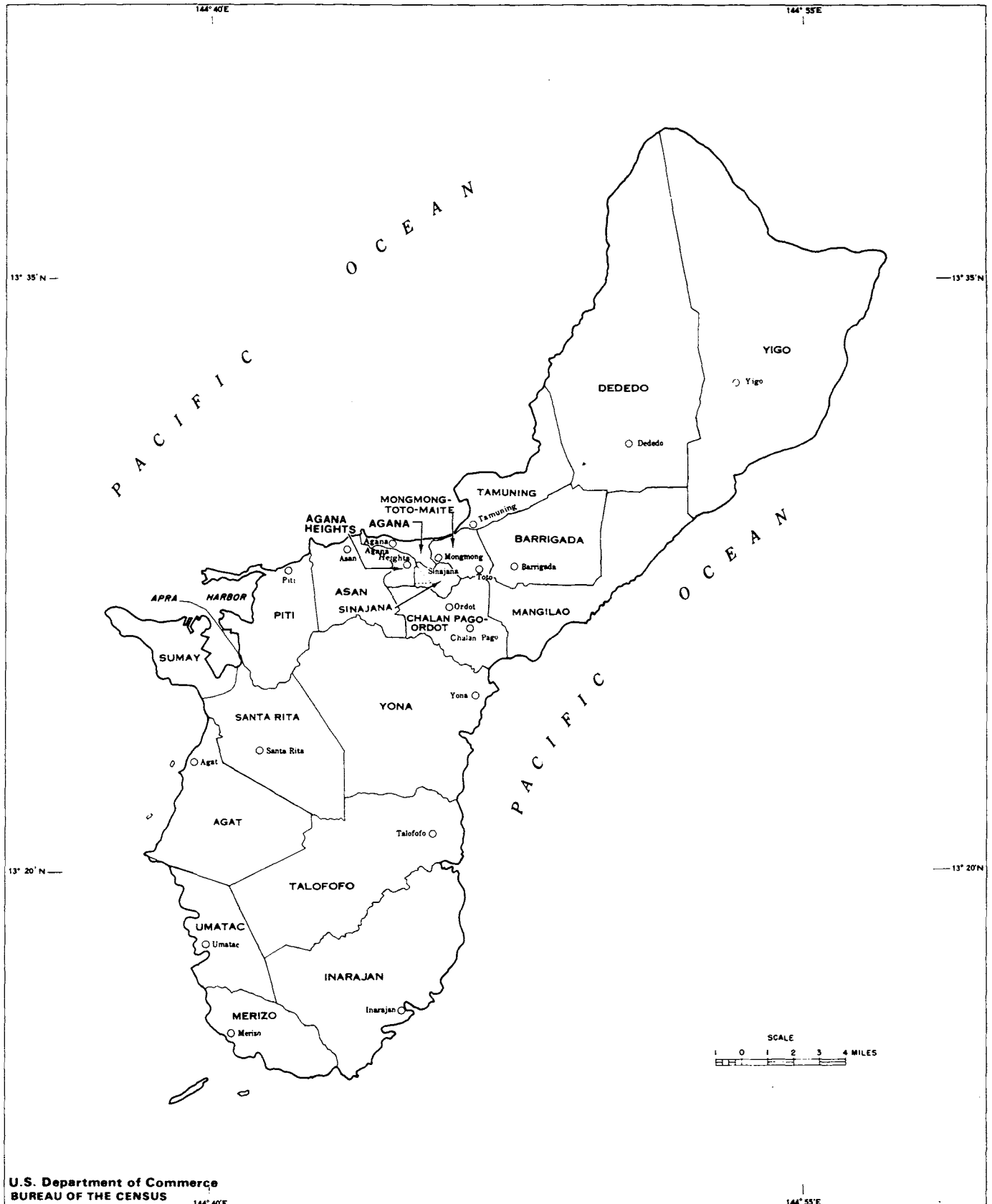
Staff	Guam	Virgin Islands
Total	24	10
Project manager	1	1
Crew leaders	2	2
Office clerks	3	1
Enumerators	18	6

The census staffs received salaries as temporary employees of the local governments, paid on the standard U.S. Government general schedule (GS) pay scale for the appropriate grades.

The project managers were appointed by the territorial governments and were responsible to the Director of the Census Bureau for the conduct of the enumeration in their areas. Their broad responsibilities included precensus preparatory activities—such as securing office space and equipment; recruiting, testing, and selecting personnel; training crew leaders and enumerators; and publicizing the census—as well as the enumeration and the clerical operations of the local office. They also kept Bureau headquarters informed of the progress of the census through periodic reports. The crew leaders functioned as assistants to the managers and directly supervised the field enumeration, as well as reviewed enumerators' work, made periodic progress reports to the manager, and carried out any related duties assigned by the manager. The enumerators actually carried out the enumeration, interviewing agriculture operators in their assigned districts in a door-to-door canvass.

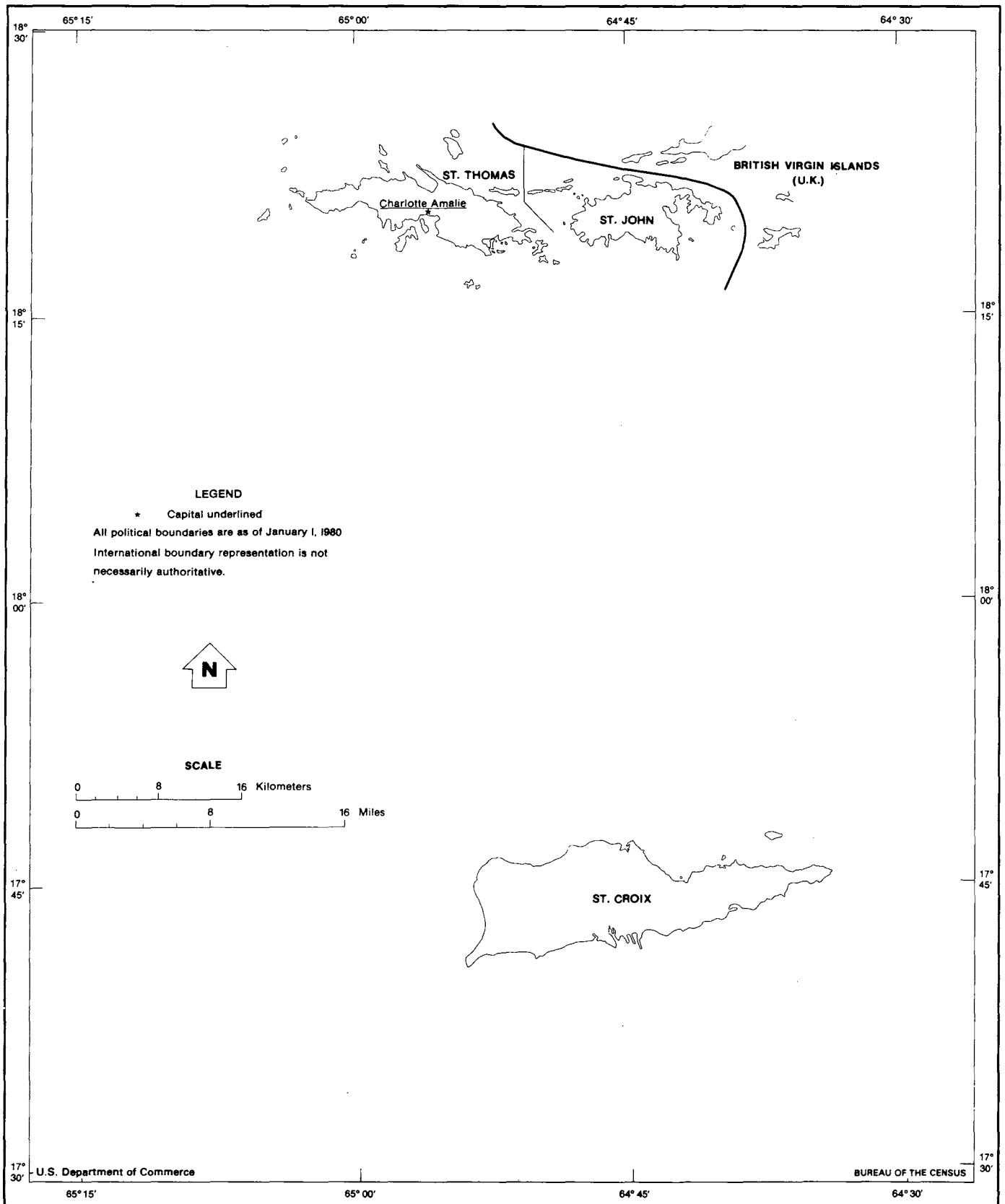
Census Bureau staff personnel went to the Virgin Islands in January, and Guam in February 1988, to train the census managers (appointed by the local governments) and their crew leaders. The agriculture census managers in the

# GUAM ELECTION DISTRICTS AND PLACES



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outlying areas also were responsible for the 1987 Economic Censuses in those areas. While the agriculture census in Guam began in February, the economic enumeration in the Virgin Islands was first, with the agriculture census getting underway in July (the agriculture census in the Virgin Islands was timed to begin at the end of the local crop year, which ran from July 1 to the following June 30). Recruiting for the respective census enumeration staffs began in January and June 1988, and the census managers carried out the 2-day enumerators' training during the second week of February 1988 on Guam, and during the last week of June in the Virgin Islands.

## Taking the Census

**Enumeration materials**—Each enumerator received an enumeration portfolio containing the forms and records needed for the field canvass: 100 copies of the report form (87-A1(G) or 87-A1(VI)), and a Form 87-A5 Record Book. The A5 Record Book included three forms the enumerator used daily: the Form A2, Listing Sheet; the Form A3, Enumerator's Daily Report; and the Form A4, Daily Record of Progress. The A2 Listing Sheets served as the record of the canvass of each ED and contained a series of screening questions used by the enumerators to determine whether a place qualified as a farm. The A2 had prelisted names and addresses of large agricultural operations in each ED. (See p. 76.) The crew leaders for each area also familiarized themselves with their respective districts, and added the addresses of locations they believed required special enumeration procedures to the A2 Listing Sheets before issuing them to the enumerators. After canvassing each day, each enumerator filled out an A3 Enumerator's Daily Report—a postcard listing the island's or ED's name, ED number, date, miles traveled, hours worked, number of report forms completed each day and to date, and number of cases pending—and turned it over to the responsible crew leader by the next morning. The A4 Daily Record of Progress contained similar information, but was kept in the Record Book for reference by the enumerator.

Each enumerator canvassed a specific geographic area, called an enumeration district (ED), and was responsible for its complete enumeration. Guam was divided into 19 ED's, corresponding generally to the island's political election districts, while the Virgin Islands were divided into 6 ED's—4 on St. Croix and 1 each on St. Thomas and St. John.

**Methods of enumeration**—The agriculture census required the enumerators to interview each head of household in an assigned ED, asking a series of screening questions to determine whether anyone in the household was involved in agricultural operations that met the census farm definition. If no one was at home, enumerators tried to obtain information from neighbors or other persons, such as hired workers, to decide whether a report form needed to be completed for that place. If so, the enumerator made a

“callback” later to complete the enumeration of the operation. Enumerators identified as the operator the person who had the day-to-day management of the farm operation. For partnerships, the partner in charge of the actual farm operations, or the senior partner, was identified as the operator. In the cases of corporations and institutions owning land used for agricultural purposes, the institution owning the land was identified as the operator, and the name of the person in charge was entered as “manager” in the “Remarks” section of the report form.

Places with two or more tracts of agricultural land, or with land in two or more ED's, required special handling. For multiple-tract places, enumerators used the same report form for all the land operated by one person, regardless of where that land was located—although the location of each tract of land was identified to prevent duplication of the data. The land and agriculture operations for an operator with land in more than one ED were enumerated in the ED where the operator resided.

The specific procedures used in the enumeration differed slightly between Guam and the Virgin Islands, although in each area every agricultural operation in each ED was to be enumerated. On Guam, a procedure code—“A,” “B,” or “C”—based on density of population was assigned to each ED to indicate how it was to be enumerated. The area descriptions and general instructions were as follows:

*Code A:* Rural areas—Enumerators visited every occupied dwelling, completed A1 forms as needed, and entered an A2 Listing Sheet line number and dwelling symbol on their assignment maps for each dwelling.

*Code B:* Built-up areas (known built-up areas were outlined in green on the assignment maps)—Enumerators followed Code A procedures except for localities with 25 or more dwellings, each on 1 acre or less of land. For such areas, only households associated with agricultural operations were listed.

*Code C:* ED's that had 10 or fewer farms listed in the 1982 census—Farm operations were prelisted for these areas and enumerators visited each address. They also checked with respondents, local merchants, and so forth to obtain information about any other place in the ED that might qualify as a farm. Enumerators visited any nonlisted places that might qualify as a farm and completed an A1 form, if needed.

Enumerators also visited every household not listed for their assigned ED, but which appeared to have agricultural operations.

**Callbacks**—When an enumerator was unable to complete a report form on a first visit to a household because the operator was not at home, available records were incomplete, or for some reason other than the operator's refusal

to cooperate, the enumerator made arrangements for a return visit—a “callback”—to complete the enumeration. Whenever possible, callbacks were made by appointment, at the respondent’s convenience and within 3 days of the first visit. The enumerator could complete the canvass by telephone if it was possible to do so.

**Refusals**—In cases of refusal, enumerators tried to persuade the respondent to provide the data requested by explaining the legal requirement to do so, emphasizing that the data reported would be kept confidential, and describing the importance of the census information. If the respondent continued to refuse to answer, the enumerator identified the case as a refusal and reported it to the responsible crew leader, who determined whether further followup should be attempted. If a respondent answered some, but not all, of the census questions, the case was identified as a partial refusal, with the items refused noted, and was referred to the responsible crew leader. The crew leader determined whether sufficient information had been collected to make a further visit unnecessary. If not, the crew leader visited the operator to try to complete the enumeration. If the respondent remained uncooperative, the crew leader referred the case to the field supervisor for resolution.

**Controls and reports**—At the end of each working day, each enumerator completed a Form A3, Enumerator’s Daily Report, with (1) hours worked “today” and hours worked to date, (2) A1 forms completed today and to date, (3) total A2 Listing Sheet lines filled out to date, and (4) callbacks to be made. The enumerators submitted the A3’s to their respective crew leaders, who, in turn, summarized the information from the field staff to complete their Form A6, Weekly Progress Report of Enumeration. The A6 provided the census manager with summary information on the number of (1) A2 lines filled, (2) questionnaires completed, and (3) callbacks pending. Crew leaders sent A6 reports to the census manager every Monday on Guam, and every Wednesday in the Virgin Islands. The managers then cabled this information to Census Bureau headquarters as a weekly progress report.

**Field review**—The census managers had overall responsibility for the conduct of the census, but the day-to-day supervision of the data-collection effort was the immediate task of the crew leaders in each area. Crew leaders supervised and reviewed the work of their enumerators, checked enumerators’ reporting programs as needed, reviewed each enumerator’s canvassing plan to ensure the most efficient enumeration, and carried out two systematic evaluations of each enumerator’s work—an initial check 3 or 4 days into the census, and a final review after the enumerator completed canvassing his or her assigned ED. In the first field review, the crew leader checked to make certain each enumerator (1) used proper procedures in covering the assigned area, (2) entered all information correctly on the appropriate listing pages and maps,

(3) properly completed required A1 forms, and (4) made callbacks in a timely manner. The reviewing crew leader identified any errors and ensured that the enumerator involved corrected those problems.

As each enumerator completed his or her assignment, the responsible crew leader carried out a final review, examining all of the enumerator’s materials, checking points covered in the initial review, and also looked at a sample of completed A1 report forms. On Guam, every fifth, and in the Virgin Islands every third, report form was checked, unless there were fewer than 10 report forms in the assignment, in which case all were checked. If the crew leader found two or more forms associated with an assignment incomplete or incorrectly filled out, all the report forms for that assignment were reviewed. Unless there was a satisfactory explanation for the omitted data, the crew leader returned the incomplete or unacceptable forms to the enumerators concerned for callback visits. Satisfactory explanations included (1) the enumerator was unable to locate any member of the household or the farm operator after two visits; (2) the housing unit concerned was vacant; or (3) the respondent refused to provide the data requested.

**Results**—The agriculture census on Guam enumerated 351 farms, with a total of 13,134 acres, and sales of agricultural products in 1987 of approximately \$2.63 million. In the Virgin Islands, the census counted 267 farms, with 17,785 acres, and \$2.69 million in sales.

## Data Processing

**Introduction**—Data processing for the report forms for Guam and the Virgin Islands involved check-in and screening at the local census offices in the respective territories and all Suitland headquarters. After this, the forms were sent to the Puerto Rico census office in Hato Rey, PR, where the data were keyed to computer files using the minicomputer facilities and staff there. The information was stored in a relational database, accessed in Puerto Rico and at the Suitland headquarters via a satellite communications link. Edits were processed on the minicomputer system using the same satellite link, and edit corrections then were completed in Puerto Rico, using the interactive system. The Suitland headquarters computer facility completed the data tabulations as the data file was edited and corrected. Once all keying operations were completed, the computerized data file was loaded onto magnetic tape reels and shipped to the Suitland office for archiving.

**Check-in and screening**—As enumerators completed canvassing their assigned ED’s, they sent the census materials to the central offices in Tamuning and Charlotte Amalie, where the office staffs checked each portfolio to make certain the record books and assignment maps were returned with the report forms. They also reviewed the listing sheets to determine if there was a completed report



form for every place that required one. The ED number and the number of A1's received for each ED were entered on the Form A17, Check-In Record.

Each incoming report form was screened to determine acceptability; i.e., clerks checked to make certain each form included:

1. A farm serial number
2. ED number
3. Name and address of operator
4. At least one entry in section 2, "Land in Agriculture"
5. At least one entry in section 3, "Crops Harvested in the Last 12 Months"
6. At least one entry in section 4, "Land Use"

All report forms were returned to their respective portfolios after check-in and screening. When an unacceptable report form was identified, the clerk entered the necessary identifying information (i.e., name of island, ED number, clerk, date, farm serial number, reason for referral, etc.) on a Form A16, Problem Referral Sheet, attached the A16 to the report form, and placed them in the original portfolio.

**Preliminary clerical review**—While the final edit and tabulation of the 1987 agriculture census data for Guam and the Virgin Islands occurred at the Bureau's Suitland headquarters, the field offices carried out a preliminary review and coverage edit before closing out their operation.

Clerks in the field offices checked entries in each A5 Record Book to make certain a report form was completed for each respondent qualifying as an agriculture operator. The office staff examined the report forms to ensure that duplicate forms had not been completed (e.g., partners filling out separate forms for the same operation, or forms completed by both an operator and the land owner), and reviewed the forms for indications from notes or other remarks that information should be included on another report form—such as a landlord incorrectly including a tenant's operation on his or her own report form. While the local census office clerks did not carry out a section-by-section review of the report forms, they did check them to assure the legibility of entries. All problems, errors, and/or inconsistencies identified in the preliminary clerical review were referred to the census manager for resolution or additional action.

The Guam and Virgin Islands offices shipped their census materials to Suitland for clerical processing in April and August 1988, respectively.

**Precomputer edit and data entry**—Agriculture Division staff at Suitland reviewed each report form from Guam and the Virgin Islands, checking responses for consistency and completeness, correcting errors in calculation and units of measure, substituting numeric for alphabetic entries where

necessary, and adjusting misplaced entries based on the data available from the same report or from nearby operations of the same type. Once all the questionnaires for an area had been edited and corrected, they were sent to the census office in Puerto Rico, where the data keying unit keyed the data from each report form. The keying program included several tests as the data were entered, checking for nonnumeric entries, illegal values, and entries too long or too short for a particular data cell. Each keyer checked each record as the keying progressed. A different keyer verified all the keyed data, and corrected all errors before releasing the record to the data file.

**Computer edit and tabulation**—Using the minicomputer system, a detailed edit of each record for the respective outlying areas checked for consistency; imputed missing or obviously incorrect entries; coded each record for size, economic class, type of farm, and age and tenure of the operator; and flagged questionable items. Once all corrections had been made, and any flagged cases satisfactorily resolved, the data were prepared for tabulations by accessing the data base. After table verification and review by Agriculture Division staff, the data underwent disclosure analysis<sup>1</sup> and then were released for printing in February 1989.

## AMERICAN SAMOA AND THE COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

### General Information

**Special arrangements**—The agriculture census in American Samoa and the Northern Mariana Islands was an adjunct to the 1990 Census of Population and Housing in those areas. In December 1989, the Governors of American Samoa and the Commonwealth of the Northern Mariana Islands signed memorandums of agreement with the Census Bureau for the 1990 censuses, including agricultural enumerations, in their respective areas. The Bureau agreed to provide special training as census project managers for representatives of each of the governments involved; appoint a census advisor to provide technical advice when needed; and produce report forms, training materials, and instructions for the census staffs. The local governments conducted the census, and were responsible for recruiting and training local field and office staffs, supervising appointments and payrolls, publicizing the census, and all other local administrative matters.

The 1990 enumeration began in April, and was completed late in August 1990. (For a complete chronology of principal operations in these areas, see App. E, Chronology of Major Census Activities.) The Bureau's Decennial

<sup>1</sup>A systematic cross-checking of each data item to determine whether the item risked disclosure of information that could be used to identify an individual respondent of operation. No data were published that disclosed the operations of an individual farm. However, the number of farms in a given size category or other classification was not considered a disclosure, so this information was included even though other data were withheld.

Planning Division (DPLD) had primary supervisory responsibility for the census, while the Agriculture Division's Outlying Areas Statistics Branch designed the agriculture questionnaire to be used, wrote agriculture enumeration procedures, and processed and tabulated the completed forms at Suitland headquarters once the data were collected. DPLD's Puerto Rico and Outlying Areas Branch served as the primary planning and coordinating office for the censuses of population and housing, and of agriculture in American Samoa and the Northern Mariana Islands. The census in American Samoa was directed from the district office in Pago Pago, on Tutuila Island, while the central office for the enumeration in the Northern Mariana Islands was established in Capitol Hill, Saipan.

**Farm definition and reporting periods**—In both American Samoa and the Northern Mariana Islands, a farm, for census purposes, was any place that had, or normally would have had, \$100 in total annual sales of agricultural products. (The 1980 census employed a definition based on inventories of poultry and livestock, vegetables or crops harvested, and number of selected plants or trees.) The agriculture census requested inventory information as of the time of the enumeration, while production and sales information were requested for calendar 1989.

## Preparations

**Report forms**—The 1990 Census of Agriculture report forms for American Samoa, the form 90-A1(AS), and the Northern Mariana Islands, the form 90-A1(NM), were 17" x 14" sheets of white stock, folded to 8 1/2" x 14", with printing and shading in red ink for American Samoa, and blue ink for the Northern Mariana Islands. The A1(AS) included special instructions on reporting use of communal lands.<sup>2</sup> Each report form requested data on the following topics:

- Land in agriculture
- Field crops, melons, and vegetables
- Fruits and nuts
- Land use
- Livestock and poultry
- Selected equipment and specified facilities
- Operator characteristics

The American Samoa and Northern Mariana forms were printed in English, and, as on the forms used on Guam and in the Virgin Islands, included a section that served as the enumerator's record of the census interview. Here the

<sup>2</sup>In American Samoa, any land used in owner-like possession for the benefit of an extended family. Land used for the sole benefit of the operator, rather than the extended family, had to be reported on a separate report form, while any land held by the extended family, but used by a nonmember, was to be reported as land rented to others.

enumerator included information on who furnished the data on the form, the address of the operation enumerated, any remarks, and the enumerator's signature and the date of enumeration.

**Maps**—The Census Bureau's Geography Division prepared master maps, showing each address register area (ARA), as well as central office, crew leader, and enumerator (these were copies of the ARA maps) maps, and an office atlas (containing a locator map sheet index, listing of map sheets by ARA, listing of ARA's by map sheet, county locator maps, a street index, and the maps in ARA numerical order), and shipped these materials to the respective areas by April 1990. Each census office received the office atlas; crew leaders, the county locator maps and the corresponding locator map index; and enumerators, the ARA maps covering the areas for which they were responsible. The ARA maps showed the boundaries of the areas, all important terrain features (such as rivers, hills or mountains, and roads), as well as built-up areas and known land subdivisions (such as military bases).

**Training and reference materials**—The Bureau developed administrative and training guides for all phases of the census operations for use by the office and enumeration staffs in the outlying areas. The materials most frequently needed for the agriculture canvass included the standard office administrative guide was the Form D-513(OA), *Office Operations Clerical Manual*. The Form D-655(OA), *Guide for Training Crew Leaders*, provided detailed instructions for training the crew leaders in each area, who also had the Form D-555(OA), *Crew Leader's Manual*, which contained instructions and guidance. The crew leaders, in turn, trained their enumerators, using the Form D-649(OA), *Training Manual for Enumerators*. Enumerators received their own reference guides, the Form D-549(OA), *Enumerator's Manual*, which covered their duties in detail, and the Form D-90-A10(AS) and (NM), *Questionnaire Reference Book for the Agriculture Census*. The A10's contained detailed instructions for the enumerators with regard specifically to the agriculture census in their respective areas, and included item-by-item information for the report forms.

**Staffing**—The staffs for the censuses in American Samoa and the Northern Mariana Islands were similarly organized. The composition of the 1990 census staffs in these areas was as follows:

Staff	American Samoa	Northern Mariana Islands
Total	124	61
Project manager	1	1
Census advisor	1	1
Office operations supervisor	1	1
Field operations supervisors	2	1
Office clerks	9	5
Crew leaders	18	7
Enumerators	92	45

The census project managers, appointed by the Governors of the respective areas, had overall responsibility for

the conduct of the censuses in their respective areas. The census advisor, however, was a Census Bureau employee specifically responsible to the Director of the Bureau for adhering to agency procedures and requirements, and maintaining acceptable statistical standards.

Recruiting for the census began in January 1990. All candidates for census jobs were given written tests by the census manager or one of the operations supervisors; applicants with passing grades were interviewed by senior census staff before final selection for hiring. The operation in both areas required crew leaders and enumerators with fluency in the local languages, since many of the inhabitants spoke little English. Every candidate was required to take an oath to protect the confidentiality of census information upon being hired.

During the first week of March 1990, the field operations supervisors trained their crew leaders in 3-day sessions that covered precensus operations (including training the enumeration staff), the enumeration, field followup, and field review duties. The crew leaders, in turn, conducted 3-day training sessions for their enumerators during the last week of March.

## Taking the Census

**General information**—Each enumerator in American Samoa and the Northern Mariana Islands received a kit that included a map of the address register area (ARA) to be canvassed, a supply of population and housing and agriculture census report forms; a supply of Form D-308OA, Daily Pay and Work Record; a Form D-104A, Address Register, for the ARA to be covered; a Form D-549, *Enumerator's Manual*; and a copy of the appropriate *Questionnaire Reference Book for the Agriculture Census*. The ARA map showed the boundaries of the area the enumerator was to canvass, as well as roads, built-up areas, and natural features. Each enumerator filled out a form D-308OA daily, with the hours worked, miles driven, telephone expenses, and the like, and periodically submitted these to his or her crew leader to keep the supervisors informed of special expenses. The address register contained listing pages for recording the names and addresses of households visited and enumerated and included check-off boxes showing which households qualified for inclusion in the agriculture census.

**Enumeration methodology**—The decennial censuses in American Samoa and the Northern Marianas employed house-to-house canvassing to enumerate each ARA. Enumerators visited every household in their respective areas and filled out (1) a 1990 Decennial Census questionnaire; and (2) an entry on the address listing page of their Address Register, with the name and address of the household, the date the questionnaire was completed, the number of persons in the household, and whether an agriculture census questionnaire had been completed for

that household. The last page of the decennial questionnaire included a section containing five screening questions to determine whether any individual in the household operated a farm, as follows:

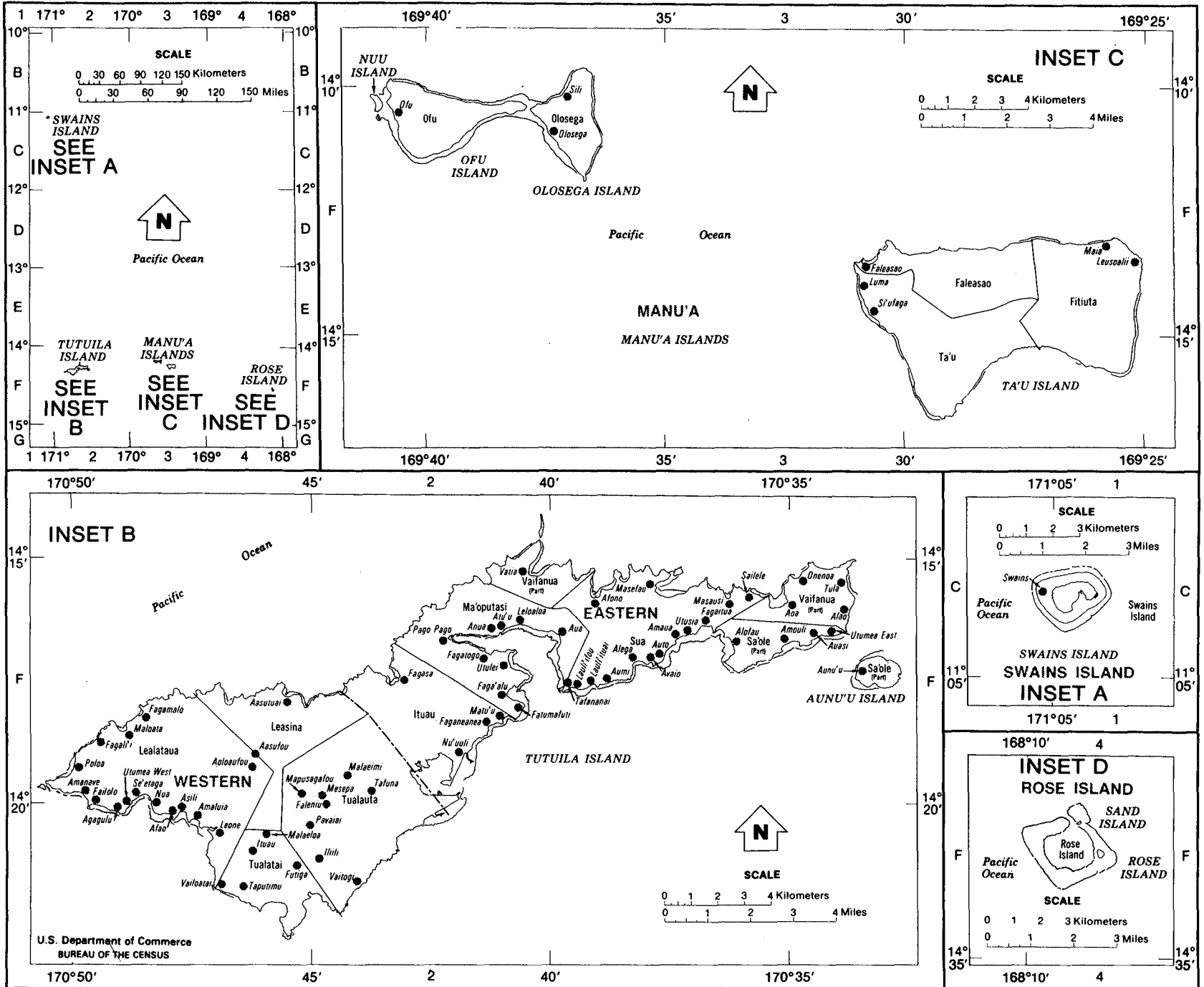
1. Does anyone living in this household operate a farm?
2. Does this place have 15 or more poultry (chickens, ducks, etc.)?
3. Does this place have 5 or more livestock (cattle, hogs, etc.)?
4. Does this place have any crops (include nursery plants) or vegetables harvested for sale?
5. Does this place have any fruit, nut or tree crops harvested for sale?

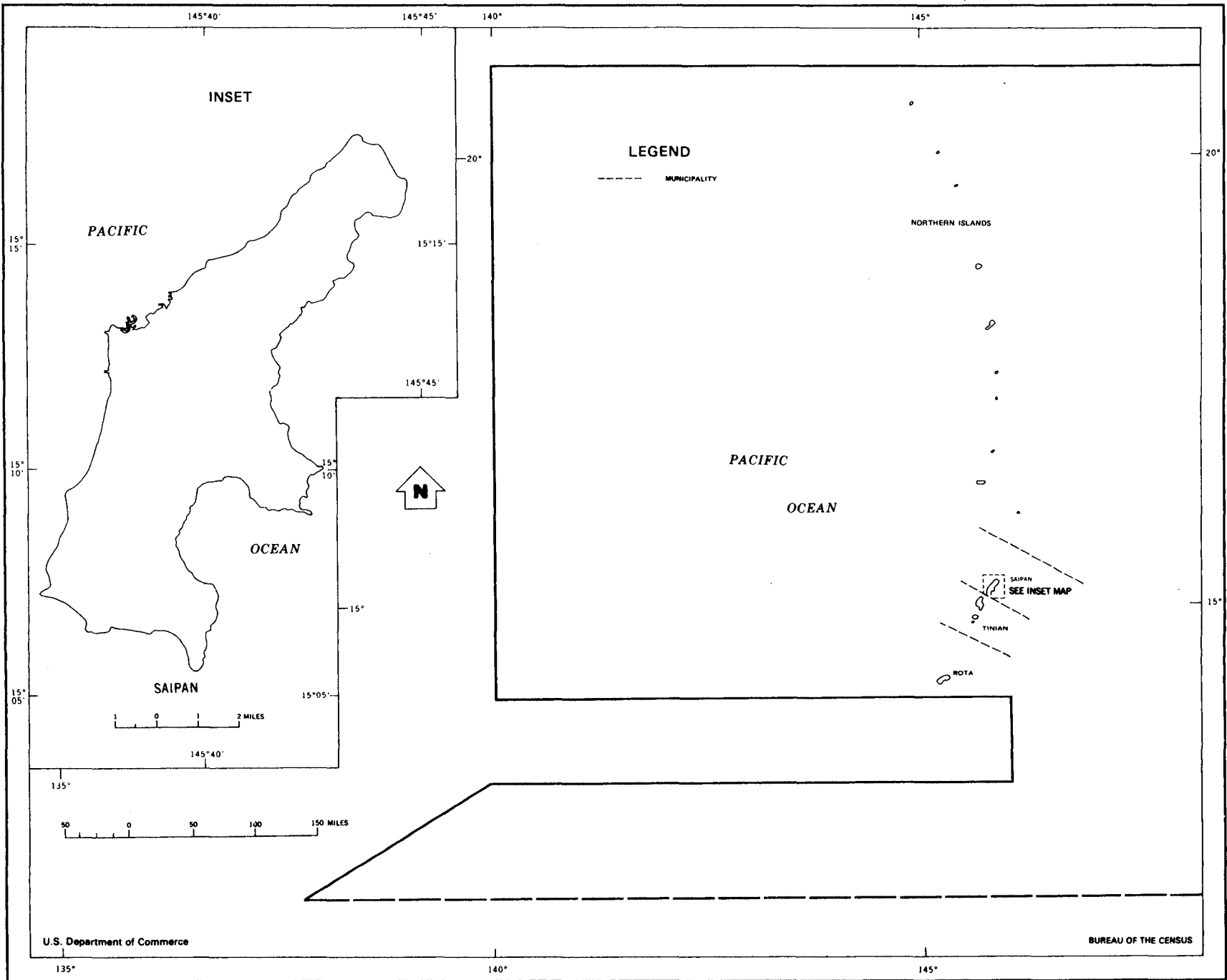
Enumerators completed a form 90-A1 for any household that gave an affirmative answer to any of these questions, regardless of where the agricultural land involved was located within the ARA. For persons operating farmland or other agricultural activities outside the ARA of residence, the enumerator included the data on those operations on the report form as well. In cases in which the respondent reported that an A1 report form already had been completed in another ARA, the enumerator filled out the identification sections of the A1 (Part A, Questionnaire Identification and Part B, Operator's Name and Physical Location), and items 1-4 of section 1 (showing acreage), noting in the remarks section of the form that a completed questionnaire had been obtained by the enumerator in the other ARA concerned. The enumerators tried to obtain names and addresses of operators for agricultural operations controlled or managed by someone living outside the ARA in which the agricultural activity was located, and noted in the remarks section that the enumerator in the appropriate ARA of residence should complete an A1 for the operation concerned.

Enumerators made up to two callbacks to places for which no report form could be completed on the first visit. If the operator still was not available, or if he or she refused to respond, the enumerator noted that in the margin of the questionnaire for that place.

**Field review and quality control**—Crew leaders were responsible for the quality of coverage and data collection within their respective areas, and spent a good deal of their time reviewing their enumerators' work. Each crew leader conducted two formal reviews of each enumerator's work; the first of these was carried out as soon after the enumeration began as possible. The crew leader reviewed the work done up to the time of the first review, comparing what the enumerator had done with the procedures established in the *Enumerator's Manual*, checking to make certain that

1. The enumerator's canvassing plan would cover the entire ARA involved.





2. At least one agriculture census questionnaire had been obtained for each farm operator identified on the enumerator's address listing pages (form D-104A).
3. Identification data were properly shown on the front of the report form and that these data agreed with the population and housing census records.
4. Entries were properly made in each section of the report form, and no sections had been skipped.
5. The enumerator's callbacks were not accumulating.

The crew leader identified errors, discussed any mistakes made with the enumerators involved, and made certain corrective action was taken as needed.

The second review of each enumerator's work was carried out when the canvass was finished and the enumeration materials were turned in, and involved checking a sample of 1 in every 5 of the agricultural questionnaires completed, unless there were fewer than 10 questionnaires involved, in which case all were checked. The crew leaders checked the returned materials for the same items covered in the first review. If the reviewing crew leader found two or more report forms from a given enumerator to be incomplete, all of that enumerator's questionnaires were reviewed. The crew leader returned any incomplete or otherwise unacceptable report forms to the enumerator involved for additional visits to the respondents, unless the enumerator could provide a satisfactory explanation why information was missing. "Satisfactory explanations" for missing data included the following: (1) the enumerator was unable to find members of the household at home after two callbacks; (2) the enumerator could not, after repeated efforts, locate the farm operator; (3) the enumerator was unable, after a second visit to a farm, to find anyone able to answer a particular question; (4) the respondent refused to provide the information; and (5) the housing unit was vacant and no one in the vicinity could supply the information.

The crew leaders also conducted a coverage check of their districts, using advance listings prepared prior to the start of the enumeration. The listings showed six consecutive living quarters in each of two selected blocks in each ARA within their crew leader areas. The crew leaders matched these against the listing pages completed by their enumerators to determine whether these households had been covered. This check was principally concerned with the population and housing census.

Enumerators turned in to their crew leaders all the enumeration materials for their ARA's as they completed canvassing. After crew leader review and any recanvassing or other corrective work, the crew leaders placed the completed report forms in a transmittal envelope identified with the enumerator's name, identification number, and the ARA assignment number, and referred the questionnaires, together with the corresponding address register pages and maps, to the field operations supervisor.

**Results**—The agriculture census in American Samoa enumerated 384 farms, with 5,805 acres, and \$1.1 million in total sales of agricultural products. In the Northern Mariana Islands, the census found a total of 119 farms, with 14,421 acres, and \$1.1 in agricultural sales for 1989.

## Data Processing

**Field office operations**—The census offices in American Samoa and the Northern Mariana Islands were responsible for checking in the agriculture census report forms and conducting a preliminary clerical edit. Upon receipt of census forms at the office, the clerks serialized the questionnaires by ARA, block number, and map spot number, and checked each decennial census report form to make certain any agriculture report forms required were present. The office operations clerks reviewed each returned questionnaire for completeness and accuracy and counted the number of each type of form received. Tallies of number and type of each completed report form checked in were kept and periodically reported to Census headquarters. When the local area census offices were closed down, the staff packed the agriculture report forms (both completed and blank) and shipped them to the Agriculture Division at Bureau headquarters in Suitland, MD, for further processing and tabulation.

**Precomputer edit and data entry**—Agriculture Division staff edited report forms, scanning each questionnaire for consistency and reasonableness of reported data, changing alphabetic entries to numeric where necessary, and checking for completeness. After reviewing and correcting all the report forms for each area, the Agriculture Division staff keyed the data from the questionnaires on minicomputer work stations, using the keying program to test the data as they were entered for nonnumeric entries and illegal values. Keyers checked each record as they completed its keying. All the keyed data were verified by a different keyer and all errors were corrected before the record was released to the data file.

**Computer processing**—The computer system at Suitland carried out a detailed edit of each record in the data files, checking for consistency; imputing missing or obviously incorrect entries; coding each record for size, economic class, type of farm, and age and tenure of the operator; and flagging questionable items. Corrections were carried to each failed record and immediately reedited; the Economic Programming Division (EPD) tabulated the data from the data base, and then produced final publications using the Census Bureau's table image processing system II (TIPS II). After table verification and review by Agriculture Division staff, the data underwent disclosure analysis and then were released for printing in December 1990.

## PUBLICATION PROGRAM

The Census Bureau published the data from the 1987 Census of Agriculture for Guam and the U.S. Virgin Islands in March and May 1989 respectively, in Volume 1, *Geographic Area Series*, Part 53, *Guam*, and Part 54, *Virgin*

*Islands of the United States.* The agriculture data for American Samoa and the Northern Mariana Islands were released in Volume 1, *Geographic Area Series*, Part 55, *American Samoa*, and Part 56, *Northern Mariana Islands*, in February 1991 and December 1990, respectively. The Bureau did not publish advance agriculture data reports for any of the outlying areas. The volume 1 reports included

data on farms and farm characteristics; land in farms and land use; operator characteristics; selected farm expenses; acres planted, amount harvested, and sales value of fruits and nuts, vegetables and field crops; selected machinery and equipment; and inventory and sales of livestock and poultry and their products. No electronically readable data files were released for the outlying areas.