Volume 5

Special Reports

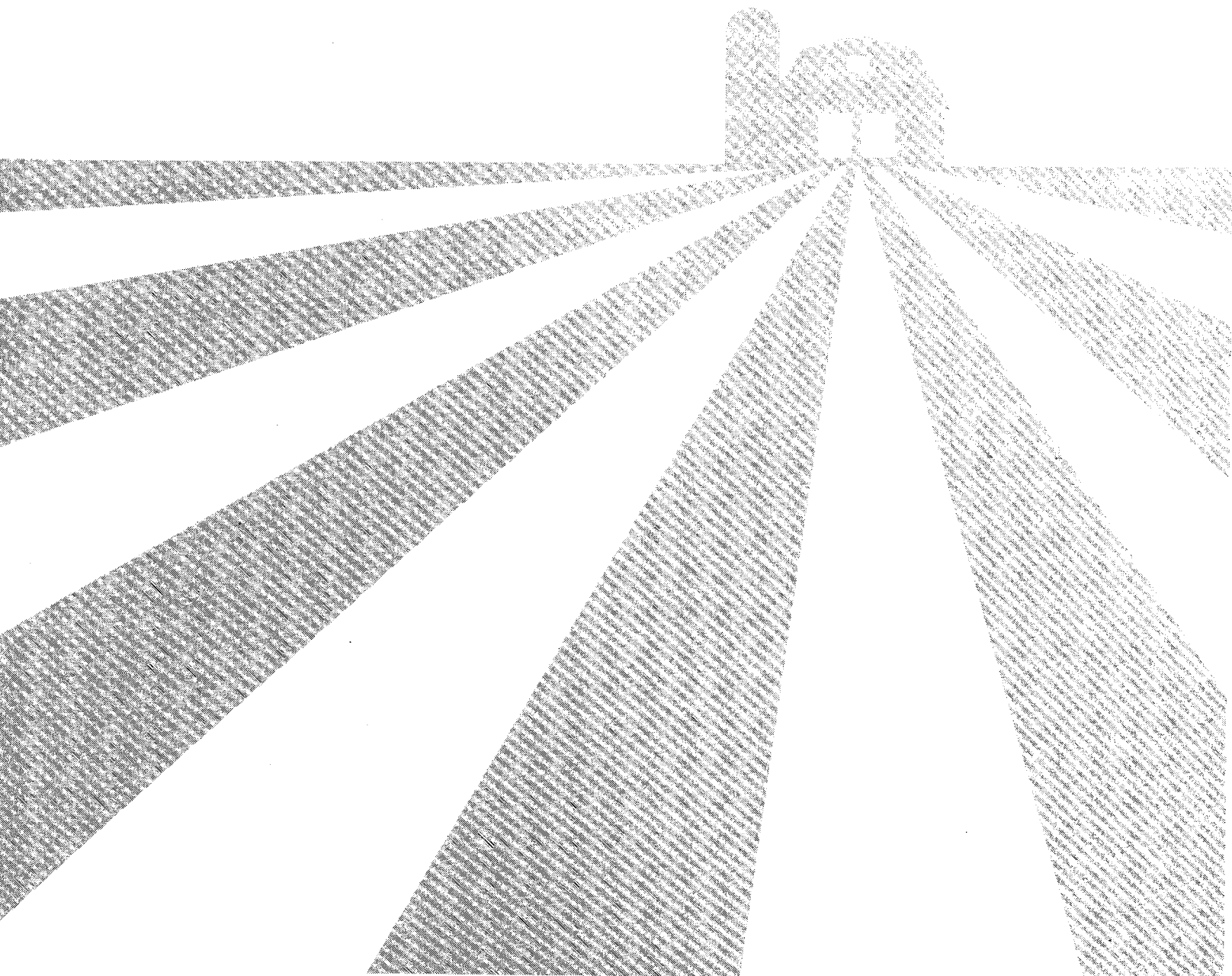
Part 3

Coverage Evaluation

AC78-SR-3

1978 CENSUS OF AGRICULTURE

U.S. Department of Commerce
BUREAU OF THE CENSUS



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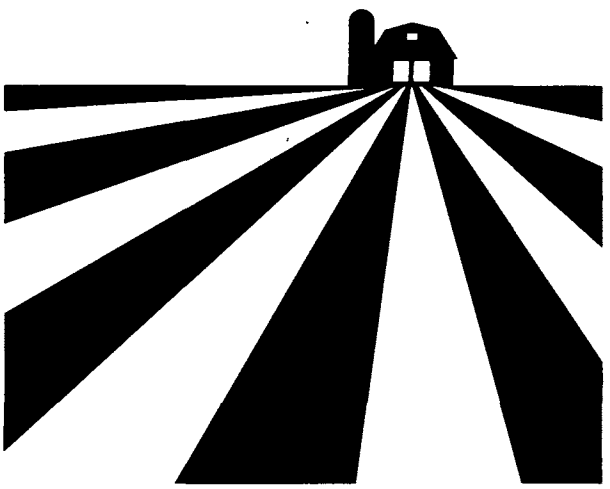

Part 3
Coverage Evaluation

AC78-SR-3

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The coverage evaluation program was prepared in the Agriculture Division under the direction of **Orvin L. Wilhite**, Chief (to January 1980), **Arnold L. Bollenbacher**, his successor (to April 1982), and **Charles E. Rogers**, Assistant Chief for Research and Methodology (to June 1981).

The planning, processing, analyses, and tabulation of the statistics were performed under the supervision of **D. Dean Prochaska**, Chief for the Program Research and Development Branch. **Jane Y. Dea** was responsible for the overall planning and coordination of the various phases. Persons providing major assistance in the processing, analyses, tabulation, and publication phases were **Dorothy M. Blackistone, William C. Davie,** and **Emily Lorenzen**. Persons providing technical and clerical assistance were **James A. Aldeman, Melody M. Atkinson, Margaret I. Bruce, James Joerger, Diane Kenney, Mary F. Marbury, Diana Marz, Donna M. Rafferty, Marjorie R. Turner,** and **Antoinette P. Wooten.**

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CONTENTS

INTRODUCTION

PURPOSE OF CENSUS COVERAGE EVALUATION

The Bureau of the Census seeks to measure the accuracy and completeness of its statistics for each census of agriculture through a coverage evaluation program. This program provides an independent check on the results and provides information to identify problem areas associated with coverage errors as a basis for developing improvements for future censuses. The results from this program serve as an important means of informing the users of the data of any known deficiencies which might affect their interpretation and uses of the data.

HISTORY AND AUTHORITY

The 1978 Census of Agriculture was the 21st nationwide agriculture census conducted in the United States. The first agriculture census was taken in 1840 as part of the sixth decennial census of population. From 1840 to 1920 an agriculture census was taken every 10 years. Beginning in 1925, the census of agriculture was conducted every 5 years. In 1976, Congress authorized the census of agriculture to be taken for 1978 and 1982 and every 5 years thereafter to coincide with the economic censuses. The census of agriculture is taken in accordance with the provisions of title 13, United States Code.

SYMBOLS

The following symbol is used throughout the tables.

– Zero.

GENERAL EXPLANATION

1978 CENSUS OF AGRICULTURE

Farm Definition

It has been necessary to establish minimum criteria for defining a farm for census purposes. The farm definition has been changed nine times since 1840, as the Nation's agricultural economy has grown and changed. The current farm definition, first used for the 1974 census, is any place from which $1,000 or more of agricultural products were sold or potentially could have been sold during the census year. The previous definition was any place with less than 10 acres from which $250 or more of agricultural products were sold or potentially could have been sold during the census year, or any place of 10 acres or more from which $50 or more of agricultural products were sold or potentially could have been sold during the census year. In all censuses, places not having sufficient sales to qualify as a farm could qualify on potential sales, based on the production of crops and/or livestock which were not sold.

Data Collection

Before 1969, the census of agriculture was based on a canvass of rural areas by enumerators and personal interviews of farm operators. The 1969 and 1974 censuses used a mailout, self-enumeration, mailback procedure to collect the data. In 1978, the mailout/mailback procedure was supplemented by the Census of Agriculture Area Sample (CAAS), a direct enumeration sample.

Mail List

The 1978 mail list was assembled from the 1974 census farm list and from records obtained from the Internal Revenue Service, the U.S. Department of Agriculture, other government agencies, and agriculture-related organizations. Lists of large and specialized operations were obtained from various trade associations and other sources. The total number of records from all sources was about 17.5 million.

Because a name and address could appear on more than one source list, a record linkage process was used to remove duplicates from the preliminary list. Records on the preliminary list that were not likely to be farms (based on the source list or lists they appeared on) were included in the 1978 Farm and Ranch Identification Survey. These addressees were mailed a short screening questionnaire to identify their current status. As a result of the Farm and Ranch Survey, addressees with no agricultural operations were excluded and new tenants and successors were added. The final census mail list contained approximately 4.4 million names and addresses.

Census of Agriculture Area Sample (CAAS)

Because previous coverage evaluation studies had shown that many smaller farms were not included on the census mail list, CAAS was used to improve the completeness of farm coverage. CAAS contained approximately 6,400 segments in rural areas (areas with less than 2,500 population). Enumerators canvassed all households in the segments in October and November 1978 and completed a census report form for each agricultural operation. These forms were matched to the census mail list. The forms for addresses that were not matched were processed as CAAS additions. Data from the final nonmatched report forms were used to estimate the number and characteristics of farms not on the mail list at the State, regional, and national levels. No county level estimates from CAAS were developed because the sample size was insufficient to provide reliable estimates at that level.

Report Forms

Two report forms were used in the mail portion of the census. A five-page form containing all the census items was sent to all large farms (based on expected sales and/or acres), farms with special characteristics, and farms from samples of other addresses. A four-page form omitting sample items was sent to the remaining addresses. The form used in the CAAS was similar to the five-page form but included additional items used for matching names and addresses to the mail list.

Mailing and Followup

Report forms were mailed in late December 1978. Nonrespondents were sent a series of seven followup letters—three with report forms—at 3- to 4-week intervals. Additional mailings and telephone calls were made in low response areas. Telephone calls were made to all nonrespondents who were expected to have large operations. The final response rate for the 1978 Census of Agriculture was about 88 percent. A nonresponse adjustment procedure was used to represent the final nonrespondent farms in the census results. This component of the census farm count is subject to sampling variability. A description of the nonresponse adjustment procedure is included in volume 1, appendix A.

Processing Procedure

Completed report forms were clerically reviewed prior to data keying. After keying, a detailed item-by-item computer consistency edit of the data was performed. Problem forms were subjected to a special review. In some cases, telephone calls were

made to respondents to resolve conflicting data or provide missing information.

After each form was screened, computer edited, and all identified problems corrected, the data items were tabulated by computer. The tabulated totals were reviewed county by county to identify and correct any remaining problems before publication.

1978 CENSUS COVERAGE EVALUATION

History

Coverage evaluation studies have been conducted for each census of agriculture since 1945. The basic procedures for each study have been:

a. Select an area probability sample, or use an existing sample and identify the farms in the sample to establish a measurement base which represents the universe of farms.
b. Match the sample farms to the census farms to determine the relationship of the census to the base sample units.
c. Followup to check and clarify differences.
d. Process, tabulate, analyze, and publish the results.

The results of previous coverage evaluation studies have influenced census procedures. Before 1950, interviewers were given the farm definition and instructed to enumerate all places conforming to that definition. The 1945 study showed that marginal farming operations were a large proportion of the missed farms. To improve the coverage of these marginal operations, the enumeration procedures were changed. Starting in 1950, interviewers were instructed to enumerate all places with specified agricultural activities and the farm definition was applied during processing.

In 1954, two new techniques were introduced to reduce the undercoverage of farms. A township sketch was used in selected counties to improve the coverage of nonresident operators, that were shown by the 1950 evaluation study to be a large share of the missed farms. Enumerators in these counties were required to draw the boundaries of each farm and each nonfarm tract on the township sketch. In addition, a listing book was used to record the location and identification of every dwelling and every place with no dwelling, but with agriculture operations, in each enumeration district.

The 1964 coverage evaluation study found that undercoverage of small farms was a continuing problem. Other studies indicated that at least equal and perhaps better coverage could be obtained with a mailout/mailback procedure. The mailout/mailback method of data collection was first used in the 1969 census and has been used in all subsequent censuses.

Coverage evaluation for 1969 and 1974 indicated that the source lists acquired for data collection by mail did not provide adequate coverage of smaller farms. In 1969 and 1974, 33 percent and 27 percent respectively, of all census farms less than $2,500 were missed. Because of this, the 1978 census was supplemented by CAAS, a coverage improvement survey designed to increase coverage of small farms at the State level. The area sample provides State, regional, and national levels.

Objectives

The 1978 coverage evaluation program was planned and developed with a specific set of objectives. These objectives were developed from a review of previous census coverage evaluation objectives along with the addition of several new objectives aimed at determining the effectiveness of new procedures developed for the 1978 Census of Agriculture. The specific planned objectives were:

a. Provide measures of the accuracy of census farm counts and a limited number of other items, such as land in farms and value of agricultural products sold, to aid users in the interpretation and utilization of the data.
b. Provide estimates indicating the characteristics of missed farms.
c. Provide information relating to the accuracy of the census area sample estimates and potential problem areas associated with the enumeration procedures.
d. Provide information on factors associated with census error and identify problem areas to improve coverage in future censuses.

Sample Survey Design and Methodology

The coverage evaluation program for the 1978 Census of Agriculture was based on two surveys—the Annual Housing Survey (AHS) and the Post Enumeration Survey (PES).

Annual Housing Survey

The AHS is an ongoing survey conducted by the Bureau of the Census used primarily to measure household characteristics. The sample represents all households in the United States.

The 1978 sample consisted of delineated sample areas spread geographically across the 50 States. About 72,000 housing units, both occupied and vacant, were included. The overall sampling rate in urban areas with population 2,500 or more was 1 in 1,366. For rural areas, with less than 2,500 population, the sampling rate was 1 in 683.

The AHS agriculture supplement (see appendix B) consisted of a short series of agriculture screening questions added to the report form of the 1978 AHS to identify potential census farms. Alaska and Hawaii were excluded from the coverage evaluation sample.

The farm universe identified in AHS was used primarily to estimate the number and the characteristics of farms not on the mail list, and operated by individuals living in urban areas with population 2,500 or more. These areas were not covered by CAAS. Also, the AHS provided measures of error for misclassified farms on the mail list. The AHS was completely independent from the 1978 Census of Agriculture, from the standpoint of data collection and source lists.

The principal processing steps for the AHS agricultural supplement were:

a. Receive AHS supplements from the census regional offices following field enumeration.
b. Identify supplements with potential agricultural activities.

c. Match supplements with potential agricultural activities to the census microfilm mail file. Identify match or doubtful match cases.
d. Mail evaluation report form (78-A90; see appendix B) to nonmatch and doubtful match cases to obtain basic farm data and additional information for matching.
e. Mail three followups to nonrespondents at 2-week intervals.
f. Telephone followup of remaining nonrespondents by regional offices.
g. Perform second match to mail list using information from form 78-A90.
h. Review form 78-A90 to classify as farm/nonfarm according to farm definition and match/nonmatch to census mail list.
i. Telephone followup to resolve problem cases and obtain form 78-A90 for noncontact cases.
j. Assign AHS weights and population size codes to all cases.
k. Obtain census data records from data file for all match cases for use in assigning farm and coverage classification codes.
l. Review and assign coverage classification codes to all cases.
m. Key data to produce coverage data file.
n. Edit and review data for accuracy and consistency.
o. Produce estimates for AHS sample error.
p. Tabulate data and publish results.

Post Enumeration Survey

The PES was a personal interview survey conducted in December 1978 following the completion of the CAAS enumeration. Its purpose was to collect data for evaluating the area sample portion of the 1978 Census of Agriculture. The PES sample consisted of a 1 in 30 subsample of the original 6,391 area sample segments selected systematically across the conterminous States. The 212 segments enumerated had an average of 75 households per segment.

The PES was conducted by field enumerators under the supervision of the Census Field Division regional offices. Only highly qualified enumerators were selected based on past performance evaluations. Intensified canvassing methods, probing interview techniques, and special forms were utilized to achieve the best coverage and quality possible. Interviews were conducted with the most knowledgeable person in each household. All members of the household were listed in the PES listing book (see appendix B), whereas, only the head of the household was listed in CAAS. A series of screening questions was used to determine which household members had agricultural operations. As a last resort, respondents who could not be personally interviewed were interviewed by telephone.

The principal processing steps were:

a. Receive PES listing books from census regional offices following PES field enumeration. Procure CAAS materials for PES subsampled segments.
b. Match PES households to CAAS households and identify PES cases with potential agricultural activities that are nonmatch to CAAS.
c. Match PES cases with potential agricultural activities that are nonmatch to CAAS to the census microfilm mail file.
d. Mail evaluation report form (78-A90; see appendix B) to nonmatch and doubtful match cases to obtain basic farm data and additional information for matching.
e. Mail three followups to nonrespondents at 2-week intervals.
f. Telephone followup of remaining nonrespondents by regional offices.
g. Perform second match to mail list using information from form 78-A90.
h. Review form 78-A90 to classify as farm/nonfarm according to farm definition and match/nonmatch to CAAS and census mail list.
i. Telephone followup to resolve problem cases and obtain a form 78-A90 for noncontact cases.
j. Assign area sample segment weights to all cases.
k. Obtain census data records from data file for all match PES cases for use in assigning coverage classification codes.
l. Review and assign coverage classification codes to all cases.
m. Key data to produce coverage data file.
n. Edit and review data for accuracy and consistency.
o. Produce estimates for PES sample error.
p. Tabulate data and publish results.

Results from the PES were used to provide a statistical basis for evaluating the completeness of the area sample results.

Estimation Procedure

The coverage evaluation provides estimates of three coverage components in relation to the census:

a. Included farms.
b. Overcounted farms.
c. Missed farms.

The estimates are based on the AHS and PES samples and take the general form, $Y_t = Y_i - Y_o + Y_m$ where:

Y_t = Estimate of total farms as determined in the coverage evaluation.

Y_i = Estimate of all farms included in the census.

Y_o = Estimate of farms overcounted in the census.

Y_m = Estimate of farms missed in the census.

The estimates of proportion of farms included in the census are in the form,

$$\text{included (percent)} = (Y_i/Y_t) \times 100.$$

The estimates of the proportion of net missed farms are in the form,

$$\text{net missed (percent)} = \frac{(Y_m - Y_o)}{Y_t} \times 100.$$

Results

Estimates of Census Coverage

Estimates of census coverage of farms were made only at regional and national levels since evaluation samples were too small to provide reliable estimates at State or county levels. Estimates of the number of farms are based on a combination of the AHS and PES samples. Estimates for the value of agricultural products sold and land in farms are based on the AHS and PES sample estimates for the included, overcounted, and missed farms. The estimates for land in farms and value of agricultural products sold do not represent a measurement of total error for these items since reporting error was not measured for included and overcounted farms.

The estimates produced in the coverage evaluation program should be considered relative to the census economic data as well as the farm count. Estimates of the total number of missed farms or the proportion of missed farms alone, are not a complete indication of the quality of the census. Consideration of economic characteristics such as estimates of the value of agricultural products sold along with the farm counts may be a better indication of census quality and, in turn, may have a greater impact on the user's needs. For example, while the net missed farm rate was 3.4 percent, the missed farms accounted for only 1.6 percent of the estimated value of agricultural products sold in the United States.

Regional estimates are presented in Tables 1, 3, and 4 to provide some indication of census coverage below the national level. Because of the relatively high sampling error these estimates may not be reliable. Caution should be observed when drawing conclusions based upon comparisons of regional estimates within and between tables.

Table 1—This table presents the number of farms by sales group, standard industrial classification (SIC), size, and operator characteristics by components of coverage. Farms were classified as included, overcounted, and missed. Overcounted farms were part of the farms included in the census. Estimates indicate that 96.6 percent of all farms were included in the 1978 census for the conterminous United States. Approximately 4.4 percent of all farms were missed and approximately 1.1 percent of all farms were overcounted resulting in an average net missed rate of approximately 3.4 percent for data at the State level and above. The average net missed rate was 15.0 percent in 1969 and 10.7 percent in 1974 for data at all levels. Comparison of these rates indicates the considerable improvement for data at the State level and above provided primarily by the inclusion of the area sample with the 1978 net missed rate being reduced to 3.4 percent from 10.7 percent in 1974. In 1978, the area sample estimates were not included in census county data.

For farms with value of agricultural products sold of $2,500 or more, 97.6 percent were included in the census. The net missed farm rate for this group was 2.4 percent. Larger farms were more likely to be included in census source lists, and received more intensive followup and processing to ensure that they were included.

An estimated 93.5 percent of farms with value of agricultural products sold of less than $2,500 were included in the census. The net missed farm rate was 6.5 percent. The net missed rate for this group was 31.6 percent in 1969 and 25.9 percent in 1974. Coverage of small farms was improved primarily by use of CAAS and by changes in the development of the mail list.

The estimated number of overcounted farms was approximately 24,000. Overcounting occurred primarily when census reports were duplicated for a single farm or when multiple census reports were included for parts of a single farm. In addition, overcounting occurred when a nonfarm was counted as a census farm or when a farm was incorrectly classified in the area sample.

Farms missed in the census are classified into three groups:

Group 1. Farms on the mail list which were misclassified as nonfarms because of incorrect reporting, incomplete reporting, and processing errors.

Group 2. Farms in urban areas excluded from the area sample and not located on the census mail list.

Group 3. Farms missed in CAAS and not located on the census mail list.

About 57 percent of the missed farms were misclassified, about 21 percent were missed in urban areas, and about 22 percent were missed in CAAS.

While about 62 percent of the missed farms had value of agricultural products sold of $2,500 or more, only 10 percent were "large" farms with sales of $40,000 or more. About 64 percent of the missed farms had less than 100 acres, and only 7 percent had 500 acres or more. Of the missed farms, 66.6 percent were operated by full owners, 12.2 percent by part owners, and 21.2 percent by tenants. Missed farms were divided equally between livestock farms and crop farms.

The net missed rate for nonresident operators in 1978 was 7.7 percent. Coverage of operators not living on their farms has been a problem in past censuses because of the difficulty in enumerating operators living in urban areas or in small towns away from their farms. Various procedures have been introduced in previous censuses to attempt to improve enumeration of nonresident operators. Although some improvement in the coverage of nonresidents has been made over the years, a relatively high undercoverage rate remains.

Table 2—This table presents the characteristics of missed farms by sales group. The missed farm data do not represent total error in the census because detailed data for the overcounted farms could not be derived in the coverage evaluation and reporting error on correctly counted farms was not measured.

The estimated total number of missed farms was approximately 101,000 or 4.4 percent of the estimated total number of farms. The average size of missed farms was 202 acres.

Table A presents selected characteristics of missed farms compared to census totals. Sample estimates of missed farm characteristics were not developed for the coverage samples and comparisons for these items can be made only by using census totals. While these estimates probably understate the total error, the missed farm estimates for these items are likely

to contribute substantially more than other components to total error. Therefore, estimated minimum levels are indicated by adding the missed farm estimates to corresponding census figures for comparison. The data in table A provide some indication of census coverage for specified items.

Table 3—This table presents estimates of the land in farms by sales group and components of coverage. For the United States, an estimated 98.0 percent of the land in farms was included in the census. Missed farms accounted for only 2.0 percent of the land in farms. Missed farms accounted for 1.9 percent of the estimated total acres for farms with sales of $2,500 or more, and 5.1 percent for farms with sales of less than $2,500. The estimates for land in farms do not represent total error because reporting error was not measured on included and overcounted farms. No sampling errors were calculated for land in farms. However, estimates should be used with caution because relatively high sampling errors are likely.

Table 4—This table presents the estimates for the value of agricultural products sold by sales group and components of coverage. Estimates indicate that 98.4 percent of the value of agricultural products sold was included in the 1978 census for the conterminous United States. Missed farms accounted for 1.6 percent of the estimated value of agricultural products sold for farms with sales of $2,500 or more, and 6.5 percent for farms with sales of less than $2,500. The estimates for value of agricultural products sold do not represent total error because reporting error was not measured on included and overcounted farms. No sampling errors were calculated for value of agriculture products sold. However, estimates should be used with caution because relatively high sampling errors are likely.

Table 5—This table presents the reliability of farm estimates by sales group, size of farm, and components of coverage. Standard errors were computed directly for the estimated total farms, included farms, and missed farms. The estimates of sampling error for the overcounted farms would have been based on a small number of observations and were not produced. Standard errors for regional estimates by value of sales and size of farm are high for some estimates and should be used with caution.

The relative standard error for the estimated total farms in the United States was 4.5 percent. The standard error for the estimate of included farms, as percent of estimated total, was 4.6 percent at the U.S. level, and ranges from 7.3 to 11.6 percent at the regional level. The relative standard error for missed farms was 11.2 percent at the U.S. level. Additional detail regarding sampling error may be found in the Accuracy of the Estimates section.

Table A. **Census Farms and Estimates of Missed Farm Characteristics for Selected Items**

(Data for Alaska and Hawaii are not included)

	Census farms published	Estimate for missed farms	Combined census farms published and missed farms	Ratio of missed farms to combined farms
Corn for grain.....farms..	842,894	20,232	863,126	2.3
acres..	70,733,245	1,042,520	71,775,765	1.5
Sorghum for grain..farms..	115,139	1,472	116,611	1.3
acres..	12,961,799	139,840	13,101,639	1.1
Wheat.....farms..	383,357	8,832	392,189	2.3
acres..	54,457,748	473,984	54,931,732	.9
Soybeans.....farms..	550,640	12,436	562,976	2.2
acres..	61,832,897	533,196	62,366,093	.9
Hay.....farms..	1,200,314	19,236	1,219,550	1.6
acres..	61,740,582	816,222	62,556,804	1.3
Tobacco.....farms..	203,015	5,888	208,903	2.8
acres..	1,004,697	39,229	1,043,926	3.8
Inventory:				
Cattle and calves.farms..	1,460,964	49,320	1,510,284	3.3
number..	105,487,755	2,060,076	107,547,831	1.9
Hogs and pigs....farms..	511,838	11,922	523,760	2.3
number..	58,759,075	193,340	58,952,415	.3
Hens and pullets.farms..	315,057	13,228	328,285	4.0
number..	357,787,310	264,054	358,051,364	.1

Other Results

One of the objectives of the 1978 coverage evaluation was to attempt to identify potential problem areas associated with the CAAS. The CAAS was used to supplement the mail list and provided approximately 8.9 percent of the total census farms at the U.S. level. Since CAAS was designed to cover rural areas only (areas with less than 2,500 population) the coverage evaluation studies were developed to provide estimates of farms operated by individuals living in urban areas (places with 2,500 inhabitants or more), as well as farms in rural areas. The AHS sample represented all population size areas; therefore, it provided the capability for the measurement of farms operated by individuals living in urban and rural areas. Estimates of missed farms in the census in urban areas are shown in table 1.

Table B shows estimates of the total number of farms by population of the area in which the residence of the operator is located. These estimates reflect the location of the farm operator household and not necessarily the location of the actual farm operation. The population areas are based on the 1970 population census information. The estimates for farms by population of area from the coverage evaluation samples are not comparable with census published data because of sampling and nonsampling errors. See, Accuracy of the Estimates.

To provide information on factors associated with census error and to identify problem areas to improve coverage in the future, three investigative studies were undertaken. These studies used information from the AHS and PES samples. The areas of study were:

a. Farms on the mail list which were misclassified as nonfarms in the census.
b. Farms missed in CAAS.
c. Farms overcounted in CAAS.

Table B. **Farms by Population of Area**

	Estimated farms	Percent
United States.....	2,279,470	100.0
1970 population of area:		
Less than 2,500 inhabitants.....	2,107,445	92.4
2,500 to 9,999 inhabitants.....	91,065	4.0
10,000 to 24,999 inhabitants.....	23,552	1.0
25,000 to 99,999 inhabitants.....	35,328	1.6
100,000 inhabitants or more.....	22,080	1.0

Exact causes of census error could not always be determined. However, in each study, all available information was used to reach reasonable conclusions.

A special study was initiated to determine reasons for misclassification of farms. Misclassification accounted for 57 percent of the missed farms because of incorrect or incomplete reporting or processing errors. The available information on each misclassified case (form 78-A90, telephone followup materials, materials from the match to the mail list, etc.) was carefully reviewed and additional matching to the mail list was conducted if any information had been overlooked in the initial matching process. A final review determined the possible reason why each case had been misclassified.

The results of the study showed that there were varied reasons for misclassification in the census. It appears that the major reason was that some census respondents felt that their operations were "too small" or "only for home use" and should not be classified as a farm. Therefore, these respondents did not report any agricultural activities or failed to report the full extent of their activities. Some changes in the design of the report form and additional review of nonfarm report forms were suggested to reduce the problem of misclassification in future censuses.

A second special study attempted to determine why farms had been missed in CAAS. The PES missed farm cases, the CAAS and PES listing books, maps, and all other information were carefully reviewed.

The conclusions reached by the study were: (1) differences in reporting data often arose when the respondent was someone other than the farm operator; (2) enumerators need to check more thoroughly for households in isolated locations so that all households in the segment are covered; and (3) smaller farm operations are most often missed because the operators feel their operations are too small to be classified as a farm and sometimes fail to give the enumerator, even after probing, complete information. It was recommended that the CAAS enumerator's instructions be modified so that the enumerators rely less on neighbors or other persons outside the household for agricultural information on the household.

The objective of the third special study was to try to determine why farms were overcounted in CAAS. Overcount occurred when a CAAS farm should have been matched to the census mail list but was incorrectly classified as a nonmatch; therefore, data from the same farm was included in both CAAS and the census. A thorough review of the CAAS and PES listing books and all information available on the PES overcount cases was completed. Farm data from CAAS and the census were compared to determine if there was duplication.

Analysis indicated that the three recurrent problems during the CAAS matching operation which led to overcount in CAAS were: (1) misspelled names in CAAS and/or the census mail list; (2) alternate addresses for the same operation; and (3) alternate names for the same operation. Additional review of the report forms for alternate names and addresses and changes in the matching procedures were recommended. Also, it was recommended that the name of the spouse be included on the CAAS report form for use in the matching procedure.

Accuracy of the Estimates

The statistics in this report are estimates derived from AHS and PES coverage evaluation sample data. Two types of errors are possible in estimates based on a sample—sampling error and nonsampling error. Sampling error occurs because observations are made only on a sample and not the entire population. Nonsampling error includes all remaining error and can be attributed to many sources, such as inability to obtain data for all cases in the sample, response error, definitional differences, coding errors, processing problems, interviewer interpretation, and analyst effects. The "accuracy" of a survey result is determined by the joint effects of sampling and nonsampling errors.

Sampling error—The sample used in this survey was one of a large number of possible samples of the same size that could have been selected using the same sample design. Estimates derived from the different samples would differ. The deviation of a sample estimate from the average of all possible samples is called the sampling error. The standard error of a survey estimate is a measure of the variation among the estimates from the possible samples and thus is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. The relative standard error is defined as the standard error divided by the value being estimated.

The sample estimates and the estimates of absolute and relative standard errors presented in table 5 permit the construction of interval estimates with prescribed confidence that the interval includes the average result of all possible samples.

If all possible samples were selected, each of these surveyed under essentially the same conditions and an estimate and its estimated relative standard error were calculated from each sample, then:

a. Approximately 67 percent of the intervals from one standard error below the estimate to one standard error above the estimate would include the average value of all possible samples.
b. Approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average value of all possible samples.

For example, the estimated total number of farms in the United States is 2,279,470 with a relative standard error of 4.5 percent. The standard error is 102,576 (4.5 percent of 2,279,470) and the chances are 2 out of 3 (67 percent) that complete coverage using the same survey methods would yield between 2,176,894 and 2,382,046 farms.

As calculated, the standard error also partially measures the effect of nonsampling errors but does not measure the effect of any systematic biases in the data arising from incorrect reporting by respondents, adjustments for nonresponse, duplication, or incomplete coverage of farms.

The following examples describe how the published standard errors in table 5 may be used to calculate approximate standard errors for selected types of derived statistics, such as relative

standard errors of ratios (example 1) and standard errors of differences between ratios (example 2).

The relative standard errors, supplemented by the correlation coefficient, may be used to develop approximate standard errors for various estimated ratios, $R' = Y'/X'$, where Y' is a subset of X'.

Example 1—Approximate relative standard errors of ratios of different items for a given classification may be computed by the formula,

$$V(R') = \sqrt{V^2(Y') - 2\rho(Y',X')\,V(Y')\,V(X') + V^2(X')},$$

where $V(Y')$ and $V(X')$ are the relative standard errors of each of the two item totals, $V^2(Y')$ and $V^2(X')$ are the squares of those relative standard errors, and $\rho(Y',X')$ is the correlation coefficient between the estimates.

The correlation coefficient may be computed by the formula,

$$\rho(Y',X') = \frac{\sigma^2(Y')}{\sigma^2(X')},$$

where $\sigma^2(Y')$ is the square of the absolute standard error of Y' and $\sigma^2(X')$ is the square of the absolute standard error of X'.

To compute the standard error of the percent of missed farms in the North Central Region, which is the ratio of missed farms to total farms, from table 5, apply the formula shown above for relative standard errors of ratios.

$Y' = 37{,}132$
$X' = 938{,}248$
$R' = Y'/X' = .040$
$V(Y') = .215$
$V(X') = .076$

$\rho(Y',X') = .013$

Substituting these values into the formula gives,

$$V(R') \doteq \sqrt{.0462 - 2(.013)(.215)(.076) + .0058}$$
$$\doteq \sqrt{.0516}$$
$$\doteq .227$$

Therefore, the estimated ratio of 4.0 percent missed farms in the North Central Region is subject to a relative standard error of 22.7 percent.

Example 2—Approximate relative standard error for the difference between ratios,

$$D' = R_1' - R_2' \text{ where } R_1' = \frac{Y_1'}{X_1'} \text{ and } R_2' = \frac{Y_2'}{X_2'},$$

may be computed by the formula, $V(D') = V(R_1') + V(R_2')$, where $V(R_1')$ and $V(R_2')$ are the relative standard errors of each of the ratios, assuming the two ratios to be statistically independent.

To compute the standard error of the difference of the ratio of missed farms in the North Central Region from the ratio of missed farms in the Northeast Region, apply the formula shown above for the relative standard error of the difference between ratios.

R_1' = ratio of missed farms in Northeast = .064
R_2' = ratio of missed farms in North Central = .040
$D' = .064 - .040 = .024$
$V(R_1') \doteq .322$
$V(R_2') \doteq .227$
Substituting these values into the formula gives,
$V(D') = .322 + .227 = .549$

Therefore, the estimated difference of 2.4 percent is subject to a relative standard error of about 54.9 percent.

Nonsampling error—Approximately 72,000 sample housing units (both occupied and vacant) were eligible for interview in the 1978 AHS. Of this number, 6.1 percent or 4,400 units were classified as noninterviews. A unit was classified as noninterview if the occupants refused to be interviewed or could not be contacted after repeated visits. In addition, about 4.0 percent or 2,900 units were partially completed interviews with the agriculture supplements being classified as noninterview. The majority of the noninterview agriculture supplements were due to refusals. The total noninterview rate for the agriculture supplement was about 10 percent.

An additional factor contributing to possible nonsampling error in the coverage estimates is that about 5 percent of the total AHS supplements with agriculture were unclassified. Unclassified cases are those which could not be identified as either a farm or a nonfarm in the coverage evaluation processing. If the correct classification could have been determined, the unclassified group most likely would have been spread throughout all coverage components. However, it is likely that the unclassified group would be concentrated more heavily in the missed farms component since the majority of these cases were not matched to the mail list.

The assumption that all nonrespondent farms are correctly represented in the census as a result of the nonrespondent adjustment procedure may produce some bias in the coverage estimates. The nonrespondent adjustment represented about 8.5 percent of the farms and about 4 percent of the value of agricultural products sold in the 1978 census. The coverage sample had a 7.5 percent adjustment rate compared with the 8.5 percent adjustment rate in the census.

Variance estimation—Estimates in this evaluation study are the sum of two separate and statistically independent surveys—the AHS and the PES. Estimates of totals and their variances are the sum of the two separate survey estimates. The evaluation of totals and their sampling variances are discussed separately for each survey.

AHS—The 1978 AHS estimates are based on data collected in October 1978 through January 1979. The sample for this survey was spread over 461 sample areas (called primary sampling units), comprising 923 counties and independent cities with coverage in each of the 50 States and the District of Columbia.

To select the sample areas, the United States was divided into areas made up of counties and independent cities referred to as primary sampling units (PSU's). These PSU's were then grouped into 376 strata, 156 of which consisted of only 1 PSU in sample with certainty. These 156 strata, mostly the larger standard metropolitan statistical areas (SMSA's), were called self-representing (SR) because the sample from the sample area represented just that PSU. Each of the other 220 strata consisted of a group of PSU's and were referred to as nonself-representing (NSR), since the sample of housing units from the sample PSU in a stratum represented the other PSU's in the stratum as well.

One PSU was selected from each NSR stratum with probability proportionate to the 1970 census population to the PSU. (This resulted in 220 NSR sample PSU's.) In addition, the NSR strata were grouped into 110 pairs and 1 stratum was picked at random from each pair. From this stratum, an additional PSU was selected independently of the other PSU selected from this stratum. Since the two PSU's were independently selected, it was possible for the same PSU to be selected twice. This occurred in 25 instances, producing an additional 85 NSR sample PSU's, thus giving a grand total of 461 PSU's.

In 1974, it was decided to increase the reliability of the AHS estimates of rural housing characteristics by doubling the number of sample housing units from rural areas. This was accomplished by activating the reserve sample, selected in the original sampling operations in 1973, from rural areas only. For the reserve sample selected in census address and new construction frames, the other half of each rural cluster (an expected two housing units) was activated in 1974, if the cluster was rural. This supplementation increased the overall probability of selection for sample housing units in rural areas to about 1 in 683; whereas, the overall probability of selection for sample housing units in urban areas remained at about 1 in 1,366.

For the 1978 AHS, approximately 77,900 sample housing units were identified in the sample areas. Of this number, about 5,900 sample units were visited, but were found to be ineligible for interview for AHS in terms of collecting information relevant to the 1978 housing inventory. Another 4,400 units were eligible for interview, but were classified as "noninterview" for various reasons.

At each interviewed household, a supplemental set of agricultural screening questions was asked of all individuals enumerated in the 1978 AHS. These screening questions were comparable to screening questions asked of households in the CAAS. All identified potential farm operations were matched to the 1978 Census of Agriculture mail list. Nonmatch and doubtful match cases were mailed an evaluation report form to obtain the basic agricultural characteristics of the operation and additional information for matching purposes.

Totals at the regional level were estimated for farm counts by major characteristics. Individual farm characteristics are expanded by the reciprocal of the probability of selection. Generally, the expansion factor was 683 in rural areas and 1,366 in urban areas. Estimates were made for total farms included farms, missed farms, and overcounted farms.

Sampling variance for major data items was estimated at the regional and national levels. Estimates of sampling reliability were made separately for the NSR and SR strata. In NSR strata, the 220 strata were collapsed into 110 strata. A third sample PSU was randomly selected from the two PSU's in each strata. The three PSU's were used to estimate variances in NSR strata. In SR strata, variances were estimated using a balanced half-sample replication estimator using all possible samples to produce estimate variances.

PES—The PES was a subsample of the 1978 CAAS. PES estimates are based on data collected in December 1978 through January 1979 following the completion of the CAAS enumeration.

The sample for the 1978 CAAS was selected from rural areas (areas in the 1970 Census of Population and Housing classified as having less than 2,500 inhabitants). A sample was selected independently from each State in the conterminous United States. A total of 6,391 sample areas were selected. Areas were selected separately from one of six strata defined by expected farm density. Data collection resulted in approximately 560,000 housing units screened and 92,000 potential farm operations identified.

The PES used a 1 in 30 subsample of the CAAS segments. The subsample was selected independently from each strata without consideration for State. Some States and groups of States had no subsample areas selected in a given strata. The PES sample was a stratified sample with an unequal probability sample within a strata. A total of 212 subsample areas were selected with approximately 16,000 households screened and approximately 3,500 potential farm operations identified.

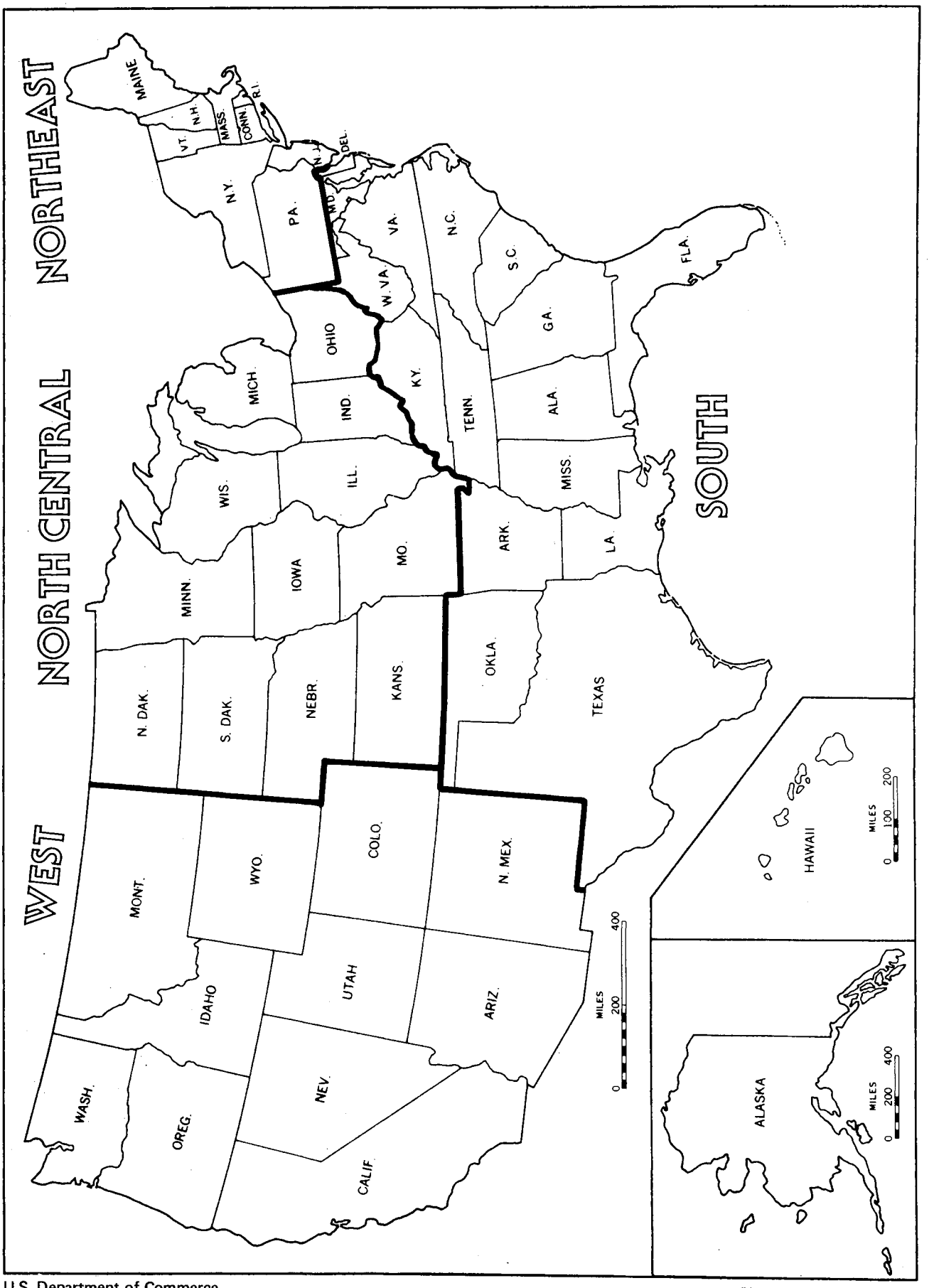
All identified potential farm operations were matched to CAAS and to the 1978 Census of Agriculture mail list. Nonmatch and doubtful match cases were mailed an evaluation report form to obtain the basic agricultural characteristics of the operation and additional information for matching purposes.

Identified farms were weighted by the reciprocal of the probability of selection,

$$\text{weight} = \text{1978 CAAS weight} \times 30.$$

Sampling error is estimated by strata within regions. To estimate sampling error, all subsample areas in a given strata of a region were collapsed into one strata. Within a collapsed stratum of a region, sampling errors were estimated assuming unequal probability random sampling with replacement. The sampling variance of strata totals were summed to estimate the sampling variance of a regional total. Regional variances were added to calculate estimates for the national total.

REGIONS OF THE UNITED STATES



U.S. Department of Commerce

BUREAU OF THE CENSUS

Table 1. **Farms by Sales Group, Standard Industrial Classification, Size, and Operator Characteristics, by Components of Coverage: 1978**

	Estimated farms[1]	Farms in census				Farms missed							
		Included		Overcounted		Total		Misclassified		In urban areas		In rural areas (CAAS)[2]	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
UNITED STATES													
Farms	2,279,470	2,202,360	96.6	23,962	1.1	101,072	4.4	57,408	2.5	21,344	0.9	22,320	1.0
Farms by value of sales:													
Less than $2,500	540,848	505,670	93.5	3,048	.6	38,226	7.1	17,664	3.3	8,832	1.6	11,730	2.2
$2,500 to $9,999	574,074	555,166	96.7	10,610	1.8	29,518	5.1	16,192	2.8	4,416	.8	8,910	1.5
$10,000 to $39,999	567,301	547,957	96.6	3,680	.6	23,024	4.0	15,456	2.7	5,888	1.0	1,680	.3
$40,000 or more	597,247	593,567	99.4	6,624	1.1	10,304	1.7	8,096	1.3	2,208	.4	-	-
$2,500 or more	1,738,622	1,696,690	97.6	20,914	1.2	62,846	3.6	39,744	2.3	12,512	.7	10,590	.6
Farms by standard industrial classification:													
Crops (01)	1,070,546	1,035,388	96.7	15,706	1.5	50,864	4.7	32,384	3.0	11,040	1.0	7,440	.7
Livestock (02)	1,208,924	1,166,972	96.5	8,256	.7	50,208	4.2	25,024	2.1	10,304	.9	14,880	1.2
Farms by size:													
1 to 99 acres	910,948	855,928	94.0	9,186	1.0	64,206	7.0	31,648	3.5	16,928	1.8	15,630	1.7
100 to 499 acres	988,802	969,864	98.1	11,096	1.1	30,034	3.0	20,608	2.1	4,416	.4	5,010	.5
500 acres or more	379,720	376,568	99.2	3,680	1.0	6,832	1.8	5,152	1.4	-	-	1,680	.4
Farms by tenure of operator:													
Full owners	1,297,341	1,246,671	96.1	16,602	1.3	67,272	5.2	35,328	2.7	17,664	1.4	14,280	1.1
Part owners	711,768	705,328	99.1	5,888	.8	12,328	1.7	8,832	1.2	736	.1	2,760	.4
Tenants	270,361	250,361	92.6	1,472	.5	21,472	7.9	13,248	4.9	2,944	1.0	5,280	2.0
Farms by age of operator:													
Under 35 years	388,648	364,213	93.7	2,944	.8	27,379	7.1	9,965	2.6	8,538	2.2	8,876	2.3
35 to 54 years	1,038,397	1,002,486	96.5	7,162	.7	43,073	4.2	20,403	2.0	11,334	1.1	11,336	1.1
55 years and over	852,425	835,661	98.0	13,856	1.6	30,620	3.6	27,040	3.2	1,472	.2	2,108	.2
Farms by residence of operator:													
On farm operated	1,723,637	1,679,507	97.4	17,822	1.0	61,952	3.6	35,328	2.0	10,304	.6	16,320	1.0
Not on farm operated	360,683	332,789	92.3	4,668	1.3	32,562	9.0	21,344	5.9	9,568	2.7	1,650	.4
Farms by principal occupation of operator:													
Farming	1,267,434	1,242,936	98.1	16,638	1.3	41,136	3.2	30,912	2.4	6,624	.5	3,600	.3
Other	1,012,036	959,424	94.8	7,324	.7	59,936	5.9	26,496	2.6	14,720	1.5	18,720	1.8
NORTHEAST													
Farms	154,216	144,876	93.9	450	.3	9,790	6.4	5,888	3.8	1,472	1.0	2,430	1.6
Farms by value of sales:													
Less than $2,500	46,362	40,988	88.4	-	-	5,374	11.6	2,944	6.4	-	-	2,430	5.2
$2,500 to $9,999	35,264	34,242	97.1	450	1.3	1,472	4.2	1,472	4.2	-	-	-	-
$10,000 to $39,999	22,816	21,344	93.5	-	-	1,472	6.5	-	-	1,472	6.5	-	-
$40,000 or more	49,774	48,302	97.0	-	-	1,472	3.0	1,472	3.0	-	-	-	-
$2,500 or more	107,854	103,888	96.3	450	.4	4,416	4.1	2,944	2.7	1,472	1.4	-	-
Farms by standard industrial classification:													
Crops (01)	56,616	50,294	88.8	-	-	6,322	11.2	3,680	6.5	1,472	2.6	1,170	2.1
Livestock (02)	97,600	94,582	96.9	450	.5	3,468	3.6	2,208	2.3	-	-	1,260	1.3
Farms by size:													
1 to 99 acres	63,768	54,714	85.8	-	-	9,054	14.2	5,152	8.1	1,472	2.3	2,430	3.8
100 to 499 acres	78,672	78,386	99.6	450	.6	736	1.0	736	1.0	-	-	-	-
500 acres or more	11,776	11,776	100.0	-	-	-	-	-	-	-	-	-	-
Farms by tenure of operator:													
Full owners	87,222	80,524	92.3	450	.5	7,148	8.2	4,416	5.1	1,472	1.7	1,260	1.4
Part owners	52,248	50,342	96.4	-	-	1,906	3.6	736	1.4	-	-	1,170	2.2
Tenants	14,746	14,010	95.0	-	-	736	5.0	736	5.0	-	-	-	-
Farms by age of operator:													
Under 35 years	26,110	25,374	97.2	-	-	736	2.8	736	2.8	-	-	-	-
35 to 54 years	72,805	68,167	93.6	-	-	4,638	6.4	736	1.0	1,472	2.0	2,430	3.4
55 years and over	55,301	51,335	92.8	450	.8	4,416	8.0	4,416	8.0	-	-	-	-
Farms by residence of operator:													
On farm operated	133,986	125,908	94.0	-	-	8,078	6.0	4,416	3.3	1,472	1.1	2,190	1.6
Not on farm operated	11,776	10,754	91.3	450	3.8	1,472	12.5	1,472	12.5	-	-	-	-
Farms by principal occupation of operator:													
Farming	95,528	90,376	94.6	-	-	5,152	5.4	3,680	3.9	1,472	1.5	-	-
Other	58,688	54,500	92.9	450	.8	4,638	7.9	2,208	3.8	-	-	2,430	4.1

See footnotes at end of table.

Table 1. **Farms by Sales Group, Standard Industrial Classification, Size, and Operator Characteristics, by Components of Coverage: 1978—Con.**

	Estimated farms[1]	Farms in census				Farms missed							
		Included		Overcounted		Total		Misclassified		In urban areas		In rural areas (CAAS)[2]	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
NORTH CENTRAL													
Farms	938,248	907,346	96.7	6,230	0.7	37,132	4.0	21,344	2.3	5,888	0.6	9,900	1.1
Farms by value of sales:													
Less than $2,500	156,090	143,584	92.0	736	.5	13,242	8.5	5,888	3.8	2,944	1.9	4,410	2.8
$2,500 to $9,999	202,002	193,174	95.6	3,286	1.6	12,114	6.0	5,152	2.6	1,472	.7	5,490	2.7
$10,000 to $39,999	271,865	261,561	96.2	-	-	10,304	3.8	8,832	3.2	1,472	.6	-	-
$40,000 or more	308,291	309,027	100.2	2,208	.7	1,472	.5	1,472	.5	-	-	-	-
$2,500 or more	782,158	763,762	97.6	5,494	.7	23,890	3.1	15,456	2.0	2,944	.4	5,490	.7
Farms by standard industrial classification:													
Crops (01)	478,845	458,407	95.7	2,944	.6	23,382	4.9	15,456	3.2	4,416	.9	3,510	.8
Livestock (02)	459,403	448,939	97.7	3,286	.7	13,750	3.0	5,888	1.3	1,472	.3	6,390	1.4
Farms by size:													
1 to 99 acres	305,858	285,198	93.3	1,472	.5	22,132	7.2	11,776	3.9	4,416	1.4	5,940	1.9
100 to 499 acres	451,427	439,713	97.4	2,550	.6	14,264	3.2	8,832	2.0	1,472	.3	3,960	.9
500 acres or more	180,963	182,435	100.8	2,208	1.2	736	.4	736	.4	-	-	-	-
Farms by tenure of operator:													
Full owner	499,170	475,850	95.3	4,022	.8	27,342	5.5	13,984	2.8	5,888	1.2	7,470	1.5
Part owner	329,842	328,370	99.5	1,472	.4	2,944	.9	2,944	.9	-	-	-	-
Tenant	109,236	103,126	94.4	736	.7	6,846	6.3	4,416	4.1	-	-	2,430	2.2
Farms by age of operator:													
Under 35 years	170,015	158,143	93.0	1,472	.9	13,344	7.9	5,152	3.1	2,944	1.7	5,248	3.1
35 to 54 years	430,281	416,797	96.9	736	.2	14,220	3.3	6,624	1.5	2,944	.7	4,652	1.1
55 years and over	337,952	332,406	98.4	4,022	1.2	9,568	2.8	9,568	2.8	-	-	-	-
Farms by residence of operator:													
On farm operated	743,288	728,064	97.9	5,494	.7	20,718	2.8	11,776	1.6	1,472	.2	7,470	1.0
Not on farm operated	118,930	106,418	89.5	-	-	12,512	10.5	9,568	8.0	2,944	2.5	-	-
Farms by principal occupation of operator:													
Farming	568,123	556,467	97.9	5,494	.9	17,150	3.0	14,720	2.6	-	-	2,430	.4
Other	370,125	350,879	94.8	736	.2	19,982	5.4	6,624	1.8	5,888	1.6	7,470	2.0
SOUTH													
Farms	903,984	882,028	97.6	15,074	1.7	37,030	4.1	22,816	2.5	6,624	.7	7,590	.9
Farms by value of sales:													
Less than $2,500	250,780	240,570	95.9	2,312	.9	12,522	5.0	7,360	2.9	1,472	.6	3,690	1.5
$2,500 to $9,999	281,856	273,998	97.2	6,874	2.4	14,732	5.2	9,568	3.4	2,944	1.0	2,220	.8
$10,000 to $39,999	203,346	200,194	98.4	3,680	1.8	6,832	3.4	3,680	1.8	1,472	.7	1,680	.9
$40,000 or more	168,002	167,266	99.6	2,208	1.3	2,944	1.7	2,208	1.3	736	.4	-	-
$2,500 or more	653,204	641,458	98.2	12,762	2.0	24,508	3.8	15,456	2.4	5,152	.8	3,900	.6
Farms by standard industrial classification:													
Crops (01)	399,513	399,645	100.0	12,026	3.0	11,894	3.0	9,568	2.4	736	.2	1,590	.4
Livestock (02)	504,471	482,383	95.6	3,048	.6	25,136	5.0	13,248	2.6	5,888	1.2	6,000	1.2
Farms by size:													
1 to 99 acres	406,740	392,666	96.5	6,978	1.7	21,052	5.2	12,512	3.1	3,680	.9	4,860	1.2
100 to 499 acres	377,055	372,325	98.7	7,360	1.9	12,090	3.2	8,096	2.1	2,944	.8	1,050	.3
500 acres or more	120,189	117,037	97.4	736	.6	3,888	3.2	2,208	1.8	-	-	1,680	1.4
Farms by tenure of operator:													
Full owner	522,339	512,919	98.2	9,922	1.9	19,342	3.7	11,776	2.3	4,416	.8	3,150	.6
Part owner	263,216	260,154	98.8	4,416	1.7	7,478	2.9	5,152	2.0	736	.3	1,590	.6
Tenant	118,429	108,955	92.0	736	.6	10,210	8.6	5,888	5.0	1,472	1.2	2,850	2.4
Farms by age of operator:													
Under 35 years	146,718	138,653	94.5	1,472	1.0	9,537	6.5	3,259	2.2	2,650	1.8	3,628	2.5
35 to 54 years	397,134	384,162	96.7	4,954	1.2	17,926	4.5	11,408	2.9	3,974	1.0	2,544	.6
55 years and over	360,132	359,213	99.7	8,648	2.4	9,567	2.7	8,149	2.3	-	-	1,418	.4
Farms by residence of operator:													
On farm operated	635,317	622,313	98.0	10,856	1.7	23,860	3.7	15,456	2.4	2,944	.5	5,460	.8
Not on farm operated	176,401	169,129	95.9	3,482	2.0	10,754	6.1	6,624	3.8	3,680	2.1	450	.2
Farms by principal occupation of operator:													
Farming	451,175	448,411	99.4	8,936	2.0	11,700	2.6	8,832	1.9	2,208	.5	660	.2
Other	452,809	433,617	95.8	6,138	1.4	25,330	5.6	13,984	3.1	4,416	1.0	6,930	1.5

See footnotes at end of table.

Table 1. **Farms by Sales Group, Standard Industrial Classification, Size, and Operator Characteristics, by Components of Coverage: 1978—Con.**

	Estimated farms[1]	Farms in census				Farms missed							
		Included		Overcounted		Total		Misclassified		In urban areas		In rural areas (CAAS)[2]	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
WEST													
Farms	283,022	268,110	94.7	2,208	0.8	17,120	6.0	7,360	2.6	7,360	2.6	2,400	0.8
Farms by value of sales:													
Less than $2,500	87,616	80,528	91.9	-	-	7,088	8.1	1,472	1.7	4,416	5.0	1,200	1.4
$2,500 to $9,999	54,952	53,752	97.8	-	-	1,200	2.2	-	-	-	-	1,200	2.2
$10,000 to $39,999	69,274	64,858	93.6	-	-	4,416	6.4	2,944	4.3	1,472	2.1	-	-
$40,000 or more	71,180	68,972	96.9	2,208	3.1	4,416	6.2	2,944	4.1	1,472	2.1	-	-
$2,500 or more	195,406	187,582	96.0	2,208	1.1	10,032	5.1	5,888	3.0	2,944	1.5	1,200	.6
Farms by standard industrial classification:													
Crops (01)	135,572	127,042	93.7	736	.5	9,266	6.8	3,680	2.7	4,416	3.2	1,170	.9
Livestock (02)	147,450	141,068	95.7	1,472	1.0	7,854	5.3	3,680	2.5	2,944	2.0	1,230	.8
Farms by size:													
1 to 99 acres	134,582	123,350	91.6	736	.5	11,968	8.9	2,208	1.6	7,360	5.5	2,400	1.8
100 to 499 acres	81,648	79,440	97.3	736	.9	2,944	3.6	2,944	3.6	-	-	-	-
500 acres or more	66,792	65,320	97.8	736	1.1	2,208	3.3	2,208	3.3	-	-	-	-
Farms by tenure of operator:													
Full owner	188,610	177,378	94.0	2,208	1.2	13,440	7.1	5,152	2.7	5,888	3.1	2,400	1.3
Part owner	66,462	66,462	100.0	-	-	-	-	-	-	-	-	-	-
Tenant	27,950	24,270	86.8	-	-	3,680	13.2	2,208	7.9	1,472	5.3	-	-
Farms by age of operator:													
Under 35 years	45,805	42,043	91.8	-	-	3,762	8.2	818	1.8	2,944	6.4	-	-
35 to 54 years	138,177	133,360	96.5	1,472	1.1	6,289	4.6	1,635	1.2	2,944	2.1	1,710	1.3
55 years and over	99,040	92,707	93.6	736	.7	7,069	7.1	4,907	4.9	1,472	1.5	690	.7
Farms by residence of operator:													
On farm operated	211,046	203,222	96.3	1,472	.7	9,296	4.4	3,680	1.7	4,416	2.1	1,200	.6
Not on farm operated	53,576	46,488	86.8	736	1.4	7,824	14.6	3,680	6.9	2,944	5.5	1,200	2.2
Farms by principal occupation of operator:													
Farming	152,608	147,682	96.8	2,208	1.4	7,134	4.6	3,680	2.4	2,944	1.9	510	.3
Other	130,414	120,428	92.3	-	-	9,986	7.7	3,680	2.8	4,416	3.4	1,890	1.5

[1]Estimates from coverage evaluation samples; not comparable with published data because of sampling and nonsampling errors. See text, Accuracy of the Estimates.
[2]Census of Agriculture Area Sample.

Table 2. **Characteristics of Missed Farms by Sales Group: 1978**

	All farms	Farms with sales of $2,500 or more	Farms with sales of less than $2,500
Farms missed.....number..	101,072	62,846	38,226
Land in farms.....acres..	20,437,370	18,358,384	2,078,986
Average size of farm.....acres..	202	292	54
Corn for grain.....farms..	20,232	16,928	3,304
acres..	1,042,520	986,976	55,544
Sorghum for grain.....farms..	1,472	1,472	-
acres..	139,840	139,840	-
Wheat.....farms..	8,832	7,360	1,472
acres..	473,984	444,544	29,440
Soybeans.....farms..	12,436	10,964	1,472
acres	533,196	518,476	14,720

	All farms	Farms with sales of $2,500 or more	Farms with sales of less than $2,500
Hay.....farms..	19,236	11,776	7,460
acres..	816,222	610,144	206,078
Tobacco.....farms..	5,888	5,152	736
acres..	39,229	38,125	1,104
Cattle and calves inventory...farms..	49,320	24,882	24,438
number..	2,060,076	1,791,146	268,930
Hogs and pigs inventory.....farms..	11,922	2,132	9,790
number..	193,340	66,952	126,388
Hens and pullets inventory....farms..	13,228	4,748	8,480
number..	264,054	136,160	127,894
Value of agricultural products sold.....$1,000..	1,653,448	1,613,802	39,646

Table 3. **Land in Farms by Sales Group and Components of Coverage: 1978**

	Estimated acres[1]	Land in farms included and overcounted in census		Farms missed	
		Acres	Percent	Acres	Percent
UNITED STATES					
Land in farms	1,013,608,255	993,170,885	98.0	20,437,370	2.0
Land in farms by value of sales:					
Less than $2,500	40,574,964	38,495,978	94.9	2,078,986	5.1
$2,500 or more	973,033,291	954,674,907	98.1	18,358,384	1.9
NORTHEAST					
Land in farms	29,727,536	29,106,628	97.9	620,908	2.1
Land in farms by value of sales:					
Less than $2,500	3,208,444	2,994,544	93.3	213,900	6.7
$2,500 or more	26,519,092	26,112,084	98.5	407,008	1.5
NORTH CENTRAL					
Land in farms	316,174,151	312,307,141	98.8	3,867,010	1.2
Land in farms by value of sales:					
Less than $2,500	9,208,020	8,356,984	90.8	851,036	9.2
$2,500 or more	306,966,131	303,950,157	99.0	3,015,974	1.0
SOUTH					
Land in farms	294,425,852	287,140,938	97.5	7,284,914	2.5
Land in farms by value of sales:					
Less than $2,500	18,868,752	18,013,790	95.5	854,962	4.5
$2,500 or more	275,557,100	269,127,148	97.7	6,429,952	2.3
WEST					
Land in farms	373,280,716	364,616,178	97.7	8,664,538	2.3
Land in farms by value of sales:					
Less than $2,500	9,289,748	9,130,660	98.3	159,088	1.7
$2,500 or more	363,990,968	355,485,518	97.7	8,505,450	2.3

[1]Estimated from coverage evaluation samples; not comparable with published data because of sampling and nonsampling errors. See text, Accuracy of the Estimates.

Table 4. **Value of Agricultural Products Sold by Sales Group and Components of Coverage: 1978**

	Estimated value of agricultural products sold[1] ($1,000)	Farms included and overcounted in census		Farms missed	
		Value ($1,000)	Percent	Value ($1,000)	Percent
UNITED STATES					
Farms	103,484,040	101,830,592	98.4	1,653,448	1.6
Farms by value of sales:					
Less than $2,500	614,529	574,883	93.5	39,646	6.5
$2,500 or more	102,869,511	101,255,709	98.4	1,613,802	1.6
NORTHEAST					
Farms	5,240,463	5,097,704	97.3	142,759	2.7
Farms by value of sales:					
Less than $2,500	44,388	40,495	91.2	3,893	8.8
$2,500 or more	5,196,075	5,057,209	97.3	138,866	2.7
NORTH CENTRAL					
Farms	42,591,604	42,209,985	99.1	381,619	.9
Farms by value of sales:					
Less than $2,500	189,787	175,235	92.3	14,552	7.7
$2,500 or more	42,401,817	42,034,750	99.1	367,067	.9
SOUTH					
Farms	28,959,258	28,457,438	98.3	501,820	1.7
Farms by value of sales:					
Less than $2,500	282,057	268,955	95.4	13,102	4.6
$2,500 or more	28,677,201	28,188,483	98.3	488,718	1.7
WEST					
Farms	26,692,715	26,065,465	97.7	627,250	2.3
Farms by value of sales:					
Less than $2,500	98,297	90,198	91.8	8,099	8.2
$2,500 or more	26,594,418	25,975,267	97.7	619,151	2.3

[1]Estimated from coverage evaluation samples; not comparable with published data because of sampling and nonsampling errors. See text, Accuracy of the Estimates.

Table 5. **Reliability of Farm Estimates by Sales Group, Size of Farm, and Components of Coverage: 1978**

	Estimated total farms			Farms included in census			Farms missed		
		Standard error			Standard error			Standard error	
	Number	Absolute	Relative (percent)	Number	Absolute	Relative (percent)	Number	Absolute	Relative (percent)
UNITED STATES									
Farms	2,279,470	102,576	4.5	2,202,360	101,309	4.6	101,072	11,320	11.2
Farms by value of sales:									
Less than $2,500	540,848	32,992	6.1	505,670	31,857	6.3	38,226	7,913	20.7
$2,500 to $9,999	574,074	42,481	7.4	555,166	42,748	7.7	29,518	8,501	28.8
$10,000 to $39,999	567,301	49,922	8.8	547,957	49,864	9.1	23,024	7,114	30.9
$40,000 or more	597,247	43,599	7.3	593,567	43,924	7.4	10,304	4,462	43.3
$2,500 or more	1,738,622	88,670	5.1	1,696,690	86,531	5.1	62,846	9,930	15.8
Farms by size:									
1 to 99 acres	910,948	65,588	7.2	855,928	63,339	7.4	64,206	15,345	23.9
100 to 499 acres	988,802	66,250	6.7	969,864	65,951	6.8	30,034	8,079	26.9
500 acres or more	379,720	50,123	13.2	376,568	50,084	13.3	6,832	3,614	52.9
NORTHEAST									
Farms	154,216	16,810	10.9	144,876	16,516	11.4	9,790	3,006	30.7
Farms by value of sales:									
Less than $2,500	46,362	9,829	21.2	40,988	9,099	22.2	5,374	2,789	51.9
$2,500 to $9,999	35,264	8,428	23.9	34,242	8,184	23.9	1,472	1,472	100.0
$10,000 to $39,999	22,816	6,525	28.6	21,344	6,147	28.8	1,472	1,472	100.0
$40,000 or more	49,774	9,706	19.5	48,302	9,660	20.0	1,472	1,135	77.1
$2,500 or more	107,854	12,188	11.3	103,888	11,843	11.4	4,416	2,221	50.3
Farms by size:									
1 to 99 acres	63,768	12,881	20.2	54,714	11,326	20.7	9,054	5,333	58.9
100 to 499 acres	78,672	14,318	18.2	78,386	14,501	18.5	736	569	77.3
500 acres or more	11,776	4,440	37.7	11,776	4,440	37.7	-	-	-
NORTH CENTRAL									
Farms	938,248	71,307	7.6	907,346	68,958	7.6	37,132	7,983	21.5
Farms by value of sales:									
Less than $2,500	156,090	17,170	11.0	143,584	16,512	11.5	13,242	5,310	40.1
$2,500 to $9,999	202,002	24,644	12.2	193,174	24,147	12.5	12,114	6,517	53.8
$10,000 to $39,999	271,865	36,430	13.4	261,561	35,834	13.7	10,304	4,740	46.0
$40,000 or more	308,291	34,529	11.2	309,027	34,611	11.2	1,472	1,220	82.9
$2,500 or more	782,158	62,573	8.0	763,762	61,865	8.1	23,890	7,239	30.3
Farms by size:									
1 to 99 acres	305,858	36,397	11.9	285,198	34,794	12.2	22,132	9,074	41.0
100 to 499 acres	451,427	45,594	10.1	439,713	45,290	10.3	14,264	6,048	42.4
500 acres or more	180,963	38,907	21.5	182,435	39,041	21.4	736	736	100.0
SOUTH									
Farms	903,984	64,183	7.1	882,028	64,388	7.3	37,030	5,962	16.1
Farms by value of sales:									
Less than $2,500	250,780	23,573	9.4	240,570	23,335	9.7	12,522	3,844	30.7
$2,500 to $9,999	281,856	30,159	10.7	273,998	30,688	11.2	14,732	4,685	31.8
$10,000 to $39,999	203,346	29,485	14.5	200,194	29,829	14.9	6,832	3,635	53.2
$40,000 or more	168,002	20,496	12.2	167,266	20,574	12.3	2,944	2,087	70.9
$2,500 or more	653,204	52,256	8.0	641,458	51,958	8.1	24,508	5,784	23.6
Farms by size:									
1 to 99 acres	406,740	45,962	11.3	392,666	45,157	11.5	21,052	7,579	36.0
100 to 499 acres	377,055	41,853	11.1	372,325	42,445	11.4	12,090	4,788	39.6
500 acres or more	120,189	18,028	15.0	117,037	18,141	15.5	3,888	2,675	68.8
WEST									
Farms	283,022	32,265	11.4	268,110	31,101	11.6	17,120	4,503	26.3
Farms by value of sales:									
Less than $2,500	87,616	11,478	13.1	80,528	10,388	12.9	7,088	3,012	42.5
$2,500 to $9,999	54,952	13,518	24.6	53,752	13,546	25.2	1,200	1,200	100.0
$10,000 to $39,999	69,274	14,755	21.3	64,858	14,658	22.6	4,416	3,281	74.3
$40,000 or more	71,180	12,029	16.9	68,972	11,587	16.8	4,416	3,338	75.6
$2,500 or more	195,406	28,920	14.8	187,582	28,325	15.1	10,032	3,461	34.5
Farms by size:									
1 to 99 acres	134,582	23,417	17.4	123,350	22,326	18.1	11,968	5,517	46.1
100 to 499 acres	81,648	14,860	18.2	79,440	15,173	19.1	2,944	2,379	80.8
500 acres or more	66,792	22,910	34.3	65,320	22,731	34.8	2,208	1,473	66.7

APPENDIX A. Farms Adjusted for Undercount: 1978 and 1974

The table in this appendix presents estimates at the national and regional levels of the number of farms adjusted for the undercount for 1978 and 1974 by sales group, size of farm, and tenure of operator. The farm counts are adjusted so that direct comparisons may be made. Unadjusted 1978 farm counts and adjusted 1974 farm counts are compared and discussed in detail in volume 1, appendix C.

The 1974 adjusted farm counts were derived using the 1974 published farm counts and the net percent missed at the State level. The State counts were summed to obtain regional and national counts. The 1978 adjusted farm counts were derived using the 1978 published farm counts and the net percent missed at the regional level and summed to obtain the national level count. As a result, adjusted counts derived by summation in this table may not be consistent with the corresponding percent missed.

The adjusted number of farms in the United States in 1978 was 2,560,842. This is a decrease of 2.3 percent from the adjusted 1974 total of 2,622,416 farms. In 1978, there were about 1.1 million farms in the North Central Region, about 1.0 million in the South Region, about 300,000 in the West Region, and about 160,000 in the Northeast Region.

In 1978, the number of farms in the United States with sales of agricultural products of less than $2,500 was about 651,000 compared to 842,000 in 1974, a 22.8-percent decrease. No substantial difference was noted between 1974 and 1978 for farms by size. In 1978, about 380,000 farms or 15 percent of the total farms had 500 acres or more and 1,100, 000 farms or 45 percent had 1 to 99 acres. The remaining 40 percent had 10 to 499 acres. In 1978, about 59 percent of the farms were operated by full owners, 28 percent by part owners, and 13 percent by tenants. In 1974, about 63 percent of the farms were operated by full owners, 25 percent by part owners, and 12 percent by tenants.

Both the 1978 and 1974 adjusted farm counts are based on coverage sample estimates and are subject to sampling variability. Sampling errors for regional estimates in 1978 are relatively high and these estimates should be used with caution.

Farms Adjusted for Undercount by Sales Group, Size of Farm, and Tenure of Operator: 1978 and 1974

	Farms, 1978			Farms, 1974			Percent change adjusted 1974 to adjusted 1978
	Published	Net percent missed	Adjusted	Published	Net percent missed	Adjusted	
UNITED STATES[1]							
Farms	2,473,949	3.4	2,560,842	2,310,702	10.7	2,622,416	-2.3
Farms by value of sales:							
Less than $2,500	610,103	6.5	650,567	616,272	25.9	842,387	-22.8
$2,500 to $9,999	663,712	3.3	685,682	585,554	9.8	648,434	5.7
$10,000 to $39,999	614,700	3.4	636,270	631,609	3.9	654,290	-2.7
$40,000 or more	585,434	.6	588,323	477,267	.2	477,305	23.3
$2,500 or more	1,863,846	2.4	1,910,275	1,694,430	4.7	1,780,029	7.3
Farms by size:							
1 to 99 acres	1,073,289	6.0	1,138,987	1,948,654	12.4	2,252,551	-3.2
100 to 499 acres	1,023,603	1.9	1,042,248				
500 acres or more	377,057	.8	379,607	362,048	1.5	369,865	2.6
Farms by tenure of operator:							
Full owners	1,449,130	3.9	1,505,697	1,422,367	13.0	1,650,942	-8.8
Part owners	712,714	.9	718,772	627,648	5.2	667,402	7.7
Tenants	312,105	7.4	336,373	260,687	12.6	304,072	10.6
NORTHEAST							
Farms	149,146	6.1	159,006	127,531	16.5	152,730	4.1
Farms by value of sales:							
Less than $2,500	44,496	11.6	50,335	35,406	35.5	55,121	-8.7
$2,500 to $9,999	36,542	2.9	37,521	26,321	9.9	29,816	25.8
$10,000 to $39,999	29,779	6.5	31,754	35,443	4.1	35,699	-11.1
$40,000 or more	38,329	3.0	39,396	30,361	4.1	32,094	22.8
$2,500 or more	104,650	3.7	108,671	92,125	5.6	97,609	11.3
Farms by size:							
1 to 99 acres	69,829	14.2	80,329	119,870	17.3	144,901	3.9
100 to 499 acres	70,887	.4	70,247				
500 acres or more	8,430	-	8,430	7,661	1.5	7,829	7.7
Farms by tenure of operator:							
Full owners	93,704	7.7	101,389	83,389	19.5	103,110	-1.7
Part owners	43,654	3.6	45,225	36,112	4.9	37,797	19.7
Tenants	11,788	5.0	12,392	8,030	32.4	11,823	4.8

See footnote at end of table.

Farms Adjusted for Undercount by Sales Group, Size of Farm, and Tenure of Operator: 1978 and 1974—Con.

	Farms, 1978			Farms, 1974			Percent change adjusted 1974 to adjusted 1978
	Published	Net percent missed	Adjusted	Published	Net percent missed	Adjusted	
NORTH CENTRAL							
Farms	1,027,723	3.3	1,062,548	1,017,367	6.3	1,096,353	-3.1
Farms by value of sales:							
Less than $2,500	153,175	8.0	166,495	159,022	23.0	210,362	-20.9
$2,500 to $9,999	231,085	4.4	241,402	235,591	8.2	255,596	-5.6
$10,000 to $39,999	321,349	3.8	333,603	360,352	3.1	370,580	-10.0
$40,000 or more	322,114	-.2	321,048	262,402	-.7	259,815	23.6
$2,500 or more	874,548	2.4	896,053	858,345	3.1	885,991	1.1
Farms by size:							
1 to 99 acres	334,945	6.7	358,556	840,774	7.5	917,793	-4.2
100 to 499 acres	507,675	2.6	520,585				
500 acres or more	185,103	-.8	183,407	176,593	.9	178,560	2.7
Farms by tenure of operator:							
Full owners	542,553	4.7	567,943	568,866	7.5	620,166	-8.4
Part owners	334,372	.5	335,245	313,364	4.0	329,173	1.8
Tenants	150,798	5.6	159,360	135,137	7.3	147,014	8.4
SOUTH							
Farms	1,015,304	2.4	1,042,011	930,099	15.2	1,107,200	-5.9
Farms by value of sale:							
Less than $2,500	331,520	4.1	345,693	365,584	25.5	497,648	-30.5
$2,500 to $9,999	330,295	2.8	339,384	269,349	11.1	302,911	12.0
$10,000 to $39,999	201,991	1.6	205,018	175,420	5.8	185,618	10.5
$40,000 or more	151,498	.4	151,916	119,746	1.1	121,023	25.5
$2,500 or more	683,784	1.8	696,318	564,515	7.4	609,552	14.2
Farms by size:							
1 to 99 acres	517,751	3.5	536,406	815,752	16.7	987,389	-6.9
100 to 499 acres	378,166	1.3	383,059				
500 acres or more	119,387	2.6	122,546	114,347	3.8	119,811	2.3
Farms by tenure of operator:							
Full owners	632,736	1.8	645,319	623,219	17.4	757,206	-14.8
Part owners	263,968	1.2	267,582	214,061	7.5	232,239	15.2
Tenants	118,600	8.0	129,110	92,819	20.9	117,755	9.6
WEST							
Farms	281,776	5.3	297,277	235,705	9.5	266,133	11.7
Farms by value of sales:							
Less than $2,500	80,912	8.1	88,044	56,260	27.8	79,256	11.1
$2,500 to $9,999	65,790	2.2	67,375	54,293	10.5	60,111	12.1
$10,000 to $39,999	61,581	6.4	65,895	60,394	3.9	62,393	5.6
$40,000 or more	73,493	3.1	75,963	64,758	.1	64,373	18.0
$2,500 or more	200,864	4.0	209,233	179,445	4.1	186,877	12.0
Farms by size:							
1 to 99 acres	150,764	8.4	163,696	172,258	13.5	202,468	14.6
100 to 499 acres	66,875	2.7	68,357				
500 acres or more	64,137	2.2	65,224	63,447	-1.8	63,665	2.5
Farms by tenure of operator:							
Full owners	180,137	6.0	191,046	146,893	12.1	170,460	12.1
Part owners	70,720	-	70,720	64,111	4.1	68,193	3.7
Tenants	30,919	13.2	35,511	24,701	8.3	27,480	29.2

[1]Data for Alaska and Hawaii not included.

APPENDIX B. Report Forms

Form Approved: O.M.B. No. 41-S79019

In correspondence pertaining to this report refer to the Census File Number (the number in the upper left corner of the address label).

FORM 78-A90 (4-24-79) U.S. DEPT. OF COMMERCE BUREAU OF THE CENSUS

AGRICENSUS 78

EVALUATION OF THE 1978 CENSUS OF AGRICULTURE

NOTICE – Response to this inquiry is required by law (title 13, U.S. Code). By the same law your report to the Census Bureau is confidential. It may be seen only by sworn Census employees and may be used only for statistical purposes. Your report cannot be used for purposes of taxation, investigation, or regulation. The law also provides that copies retained in your files are immune from legal process.

(Please correct any error in name and address including ZIP code)

Please complete and RETURN to: **Bureau of the Census ATTN: Agriculture Division Washington, D.C. 20233**

CENSUS USE ONLY	010	011	012
	013	014	015

Section 1 **ACREAGE and OWNERSHIP as of December 31, 1978**

	None	Acres
1. Land owned on December 31, 1978	☐	040
2. Land rented or leased **from** others on December 31, 1978 *(Include land worked on shares or share-cropped for others; leased Federal, State, and railroad land; and land used rent free. Do not include land used on a per-head basis under a grazing permit.)*	☐	050
3. Land rented or leased **to** others on December 31, 1978 *(Include land subleased and land worked on shares or share-cropped by others.)*	☐	060
4. **ACRES IN THIS PLACE** – *Please ADD acres owned (item 1) to acres rented (item 2), then SUBTRACT acres rented to others (item 3), and enter your answer in this space.* ➡		070

5. If you rented land FROM OTHERS (item 2 above), please enter the following information for each landlord.

Name	Address (No. and street, city, State, ZIP code)	Number of acres
		071
		072
		073

6. If you rented land TO OTHERS (item 3 above), please enter the following information for each tenant or renter.

Name	Address (No. and street, city, State, ZIP code)	Number of acres
		074
		075
		076

a. Of the land you rented or leased to others (item 3 above), how many acres did you own? None ☐ 077 _____ Acres

Section 2 **LOCATION of agricultural activity in 1978**

1. In what county and State was the largest value of your agricultural products raised or produced?

County _____ State _____

2. Did you have agricultural operations in any other county or counties?

☐ Yes – *Complete the following. Give names of counties, States, and acres located in each.*

☐ No – Go to section 3

County	State	Acres
		083
		084
		085

Section 3 **OPERATIONAL STATUS** – Your farm or ranch may have been included in the agriculture census under a different name or address. The information requested in this section will be used to examine all possible names and addresses on the census file.

1. In the past two years have you received mail at any address other than the one listed in the address label on page 1 of this form? *(Include different ways mail can be addressed to you at your present location.)*

☐ Yes – *Enter other address* →

☐ No

Number and street		
City	State	ZIP code

2. For business purpose, do you use any name, other than shown on the address label, for this agricultural operation?

☐ Yes – **What is the name and address?** →

☐ No

Name		
Number and street		
City	State	ZIP code

3. Do you have an Employer Identification (EI) Number?

☐ Yes – *Enter number* → 086 EI Number ☐☐ – ☐☐☐☐☐☐☐

☐ No

4. Mark (X) the box which best describes the type of organization for this place in 1978.

087

1 ☐ Individual or Family operation (sole proprietorship), excluding partnership and corporation
2 ☐ Partnership operation, including family partnership
3 ☐ Corporation, including family corporation
4 ☐ Other – *Specify type of organization, such as cooperative, estate, trust, etc.* _____

5. At any time during 1978, were there any other individuals associated with the operation of this place? *(Include partners, children, relatives, managers, and other associated persons. Do not include landlords or tenants listed on page 1.)*

☐ Yes – **Who are they?** – *Fill table below*

☐ No

Name	Address (No. and street, city, State, ZIP code)	What is this person's family relationship to the operator of this farm? (For example, parent, son, uncle, or not related.)	Enter description of person, e.g., partner, business associates; other – *Specify*

6. What is the name of the person primarily in charge of the agriculture operation (person making the majority of the management decisions)? (If a partnership or corporation and several individuals share equally in the management decisions, enter the name of the senior person or partner.)

Name of the person in charge _____

Section 4 **CROPS HARVESTED FROM THIS PLACE IN 1978**

Report all crops harvested during 1978. Be sure to include the landlord's share and crops grown under contract. Do not include crops on land rented to others. (NOTE: If you do not have exact figures from your records, please give us your best estimate.)

	Acres harvested in 1978	Quantity harvested in 1978	Value of sales (Include landlord's share) Dollars	Cents
1. Field corn for grain or seed (Report quantity on a shelled basis in either **bushels or hundredweight.** 70 lbs. ear corn or 56 lbs. shelled corn = 1 bushel shelled corn.) ☐	101	102 Bu. OR 103 Cwt.	104 $	
2. Field corn for silage, cut for green chop or dry fodder, hogged or grazed (Do not include acres already reported in item 1.) ☐	105		106 $	
3. Sorghums or milo for grain or seed (Report quantity harvested in either **bushels or hundredweight.**) ☐	111	112 Bu. OR 113 Cwt.	114 $	
4. Sorghums for silage, cut for green chop, dry forage or hay, or hogged or grazed (Do not include acres already reported in item 3.) ☐	115		116 $	
5. Soybeans for beans ☐	121	122 Bu.	123 $	
6. Peanuts for nuts ☐	124	125 Lbs.	126 $	
7. Wheat for grain ☐	131	132 Bu.	133 $	
8. Other small grains for grain — oats, barley, rye, rice, etc. — Specify crop name _____ ☐	134		135 $	
9. Cotton ☐	141	142 Bales	143 $	
10. Tobacco — all types ☐	151 /10	152 Lbs.	153 $	
11. Irish potatoes (exclude home use) ☐	154 /10	155 Cwt.	156 $	
12. Sweetpotatoes and yams (exclude home use) ☐	157 /10	158 Bu.	159 $	
13. Hay — all kinds except sorghum hay (Include grain hay, grass silage, wild hay, etc. If two or more cuttings were made from the same land, **REPORT ACRES ONLY ONCE** but report total tons of all cuttings.) ☐	161	162 Tons, dry	163 $	
14. Vegetables, sweet corn, or melons **for sale** (exclude home use) ☐	171 /10		172 $	
15. Land in bearing and nonbearing fruit orchards, citrus or other groves, vineyards, and nut trees of all ages (Include land on which the fruit crop failed. Do not include abandoned acreages.) — Specify crop name _____ ☐	173 /10		174 $	
16. Berries for sale (exclude home use) — Specify crop name _____ ☐	175 /10		176 $	
17. All other crops (Include field seeds; sugar crops; nursery products; flowers, etc., grown in the open; sod; etc.) — Specify crop name _____ ☐	181 /10		182 $	

	None	Square feet	Value of greenhouse sales Dollars	Cents
18. If any greenhouse products were sold, how many square feet were under glass or other protection? ☐		191	192 $	

Section 5 **LIVESTOCK AND POULTRY**

Be sure to report all livestock and poultry on this place on December 31, 1978, no matter who owned them. Include as sold all livestock and poultry fed on a contract or custom basis and taken from this place in 1978.
(NOTE: If you do not have exact figures from your records, please give us your best estimate.)

	None	INVENTORY Number on this place December 31, 1978	Number sold in 1978	Gross value of sales Dollars	Gross value of sales Cents
• POULTRY		201	202	203 $	
1. Hens and pullets of laying age (*Exclude started pullets being raised for sale.*)	☐				
a. Value of eggs sold	☐			204 $	
2. Pullets 3 months old or older not yet of laying age	☐	211	212	213 $	
3. Broilers, fryers, and other meat-type chickens (including capons and roasters)	☐	221	222	223 $	
4. Other poultry raised in captivity (turkeys, ducks, geese, etc.)	☐	231	232	233 $	
Specify kind of poultry _____		234	235	236 $	
• CATTLE		241	242	243 $	
1. Cattle and calves of all ages (Total of a, b, and c below)	☐	244	245	246 $	
a. Beef cows (*Include beef heifers that had calved.*)	☐	247	248	249 $	
b. Milk cows (*Include dry milk cows and milk heifers that had calved.*)	☐	251	252	253 $	
c. Other cattle and calves (*Include heifers, steers, bulls and calves.*)	☐			254 $	
2. Value of milk sold	☐	261	262	263 $	
• HOGS		271	272	273 $	
1. Hogs and pigs of all ages	☐	281	282	283 $	
• OTHER LIVESTOCK AND ANIMAL SPECIALTIES		291	292	293 $	
1. Sheep and lambs of all ages	☐	294	295	296 $	
2. Horses and ponies of all ages	☐	297	298	299 $	
3. Other livestock — goats, mules, fur-bearing animals, colonies of bees, fish in captivity except at fish hatcheries, etc.	☐				
Specify what kind _____					

FORM 78-A90 (4-24-79)

Section 6 **OPERATOR CHARACTERISTICS –**

Answer questions 1 through 6 for the person in charge of the operation.
If a corporation answer for the manager.
If a partnership answer for the person in charge or senior partner.

1. RESIDENCE – Does the operator live on this place? . . . . . 923 ☐ 1 Yes ☐ 2 No

2. RACE of operator 924
☐ 1 White
☐ 2 Negro or Black
☐ 3 American Indian
☐ 4 Asian or Pacific Islander
☐ 9 Other – *Specify* _____

3. AGE of operator . . . . . 925 _____ Years old

4. PRINCIPAL OCCUPATION – At which occupation did the operator spend the majority (50 percent or more) of his work time in 1978? *For partnerships consider all members of the partnership together* . . . 928 ☐ 1 Farming ☐ 2 Other

5. OFF FARM WORK – How many days did the operator (senior partner or person in charge) work at least 4 hours per day off this place in 1978? *Include work at a nonfarm job, business, or on someone else's farm. (Exclude exchange farm work.)* 929
☐ 1 None
☐ 2 1–49 days
☐ 3 50–99 days
☐ 4 100–149 days
☐ 5 150–199 days
☐ 6 200 days or more

6. In what year did you begin to operate any part of this place? . . . . . 930 _____ Year

Section 7 **CENSUS STATUS** – In January 1979, U.S. Census of Agriculture questionnaires were sent to farm operators throughout the United States.

1. Did you receive an agriculture census form around the first part of 1979?

☐ Yes – *Enter the name and address which appeared on that form and the Census File Number (CFN), if available.*

☐ No – *Go to section 8*

Census File Number		
Name		
Number and street		
City	State	ZIP code

Section 8 **PERSON COMPLETING THIS REPORT**

	Name	Date	Telephone
PLEASE PRINT		931 Month / Day	932 Area code / Number

Remarks

FORM 78-A3(PES)
(10-11-78)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

LISTING SHEET A3(PES)
1978 CENSUS OF AGRICULTURE – AREA SAMPLE POST ENUMERATION SURVEY

Household number (1)	Line number (2)	a. What is the name of the head of this household? b. What are the names of all other persons residing in this household? *List the first name, middle initial, and last name.* (3)	Is . . . 18 years of age or older? (4) Yes	No	What is the mailing address of the head of household? *Enter the complete mailing address (Include Route No., Box No., House No., Post Office, State, and ZIP code.)* (5)	*Complete the following questions for the head of household, each individual with a "Yes" in column 4, and additional separate agricultural operations.* Did . . . have any cattle, hogs, sheep, poultry, or horses for sale or home use during 1978? *If "Yes," skip to column 11. If "No," go to column 7.* (6) Yes	No	Did . . . have any other livestock or animal specialties during 1978? *If "Yes," skip to column 11. If "No," go to column 8.* (7) Yes	No	In 1978, did . . . raise or sell any crops, such as corn or hay? *If "Yes," skip to column 11. If "No," go to column 9.* (8) Yes	No	Did . . . raise FOR SALE any vegetables, berries, nursery or greenhouse products? *If "Yes," skip to column 11. If "No," go to column 10.* (9) Yes	No	Did . . . have 20 or more fruit or nut trees? *If "Yes," go to column 11. If "No," go to next line with a "Yes" in column 4. After last "Yes" in column 4, go to column 17.* (10) Yes	No

Form Approved: O.M.B. No. 41-S78069

LISTING SHEET A3(PES)
1978 CENSUS OF AGRICULTURE – AREA SAMPLE POST ENUMERATION SHEET – Continued

If "Yes" to any of columns 6, 7, 8, 9, or 10 complete columns 11–16.

How many acres of land did . . . operate during 1978? *Include acres owned and rented from others, minus acres rented to others.* (11)	Was . . .'s agricultural operation an individual or family operation? (12) Yes	No	Was . . . (also) involved in a partnership operation? (13) Yes	No	Was . . . (also) involved in a corporate operation including a family corporation? (14) Yes	No	Was . . . (also) involved in any other operation such as an estate, trust, or cooperative? (15) Yes	No	What is the name and phone number of the person in charge of this operation? (16)	Who lives in the households adjacent to this property? *Ask only once per household and note last names below.* *END OF INTERVIEW* (17)	*For observation by enumerator.* Are there roads, lanes, mailboxes, etc., between households? *If "Yes," enumerate additional dwelling unit(s) located, or explain in column 19.* (18) Yes	No	Remarks and reminders *(When to callback, telephone numbers, explanation, etc.)* (19)	Date completed (20)

If associated with two or more types of operations fill a separate listing line (column 3) for each separate operation

Form Approved: O.M.B. No. 63-R1593

NOTICE – All information which would permit identification of the individual will be held in strict confidence, and will be used only by persons engaged in and for the purposes of the survey. The information will not be disclosed or released to others for any purpose.

FORM **AHS-2A**
(7-21-78)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
ACTING AS COLLECTING AGENT FOR
DEPARTMENT OF HOUSING AND
URBAN DEVELOPMENT

ANNUAL HOUSING SURVEY

HOUSING MODIFICATION SUPPLEMENT

(Only sections relating to agriculture are shown)

7. Now I would like to ask some questions about persons in this household who may raise agricultural products. Today, many persons who raise agricultural products do not live on farms but live elsewhere and travel to and from their farm. The Census Bureau needs to learn more about the people who live in urban areas and raise agricultural products.

During the past year did anyone in this household do any of the following, either here or on some other land —

a. raise any crops including hay?

☐ Yes

☐ No

b. raise any greenhouse or nursery products, or any fruits or vegetables for sale?

☐ Yes

☐ No

c. raise any livestock or poultry or produce any other agricultural products of any kind?

☐ Yes

☐ No

CHECK ITEM	*Refer to 7a–c*
	☐ "Yes" to 7a, b and/or c – *Ask 7d for each "Yes"*
	☐ "No" to ALL 7a–c – *Skip to 7e*

d. What is the name, address and telephone number of the person who *(Insert activity from 7a, b or c)*?

(1) Name

Address – *Number and street, city, State, ZIP code*

Telephone

Area code	Number	Extension

(2) Name

Address – *Number and street, city, State, ZIP code*

Telephone

Area code	Number	Extension

(3) Name

Address – *Number and street, city, State, ZIP code*

Telephone

Area code	Number	Extension

7e. AHS Control number

PSU	Segment	Serial	Sample
			F1 or F2

Last name of household head

Address – *Number and street, city, State, ZIP code*

*U.S. GOVERNMENT PRINTING OFFICE: 1982 360-997/2125 1-3

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