1964 "AGRICULTURE





Reports for the 1964 Census of Agriculture

Preliminary reports

These reports, issued for each county and State, contain totals for farms, farm acreage, farm operators, land in farms classified by use, landuse practices, equipment and facilities, expenditures, use of agricultural chemicals, poultry, livestock, poultry and livestock products, and crops harvested, including fruits and nuts, nursery and greenhouse products, and forest products.

VOLUME I. STATE AND COUNTY STATISTICS

A separate part was issued for each State, Puerto Rico, Guam, and the Virgin Islands.

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Statistics by subject are presented, with totals for the U.S. regions, geographic divisions, and States.

VOLUME III. SPECIAL REPORTS

Reports present data for supplementary surveys for farm workers, hired farm workers, for the 1965 Sample Survey of Agriculture, farm debt, and reports on procedures and evaluation.

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PREFACE

This report describes the methodology and the results of a study conducted to evaluate coverage in the 1964 Census of Agriculture. The study was limited primarily to measuring the accuracy of census data on number of farms, land in farms, and cropland harvested. The report includes a review of the uses which have been made of results from previous coverage checks and presents a statement on implications for future censuses of agriculture.

The coverage check was only one of two studies designed to evaluate the quality of information collected in the 1964 Census of Agriculture. A report on the other study, called the panel evaluation survey, will be published as chapter 2 of volume III, part 7.

The procedures and sample design for the 1964 coverage check were developed by Roe Goodman with the assistance of Donald G. Larson, both of the Statistical Research Division. The collection of data in the first and second phases of the field enumeration was under the direction of Jefferson D. McPike, Chief, Field Division, assisted by George Klink, Assistant Chief.

The Statistical Laboratory of Iowa State University took part in the preparation of questionnaires and instruction materials and conducted the field work and certain phases of the processing for parts of the country, under a contract with the Bureau of the Census. This work was supervised by Professors Wayne Fuller, Norman Strand, and Harold Baker. Charles K. Graham, of the Statistical Laboratory, supervised and carried out the analysis of the two methodological studies described in section VIII, part B.

Later stages of the field work and processing were coordinated by Eugene Hixson of the Statistical Research Division. Detailed specifications for computer tabulations were prepared by Thomas B. Jabine, of the Office of the Associate Director for Research and Development, who also supervised the IRS match project described in section VIII, part A. Computer programs were prepared by Alfred Sands of the Statistical Research Division.

This report was prepared by Bryan J. Hargis of the Statistical Research Division. General supervision throughout the project was provided by William N. Hurwitz, formerly Chief of the Statistical Research Division, and Ray Hurley, formerly Chief of the Agriculture Division.

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A. Purpose of Census Coverage Checks¹

The Bureau of the Census attempts to measure the accuracy of the statistics it produces in all major censuses. An important source of such measurement for agricultural statistics has been the coverage checks conducted in connection with each quinquennial census of agriculture since 1945. The primary purposes of these studies have been--

1. To identify factors associated with coverage errors, as an aid in planning future censuses.

2. To inform users about errors in the data which might affect their interpretation and uses of the data.

B. Objectives

The specific objectives of the coverage checks have been--

1. To provide national and regional measures of the accuracy of the census farm counts.

2. To provide measures of the accuracy of census results for a limited number of items such as land in farms, cropland harvested, acreage of major crops, and number of farms classified by tenure and size.

3. To provide information on factors associated with measurement errors, with special attention to the characteristics of farms missed in the census.

C. Principal Operations

The same principal operations have been used in all of the coverage checks to date. They are as follows:

Step 1. An enumeration, using the most reliable techniques available and without reference to the census results, of farms associated with segments in a probability sample of land areas.

Step 2. Matching results obtained in step 1 against census materials in order to identify farms missed in the census and differences between census and coverage check information for farms included in the census.

Step 3. Mail, telephone, and field followups, as needed, to clarify and check the results obtained in steps 1 and 2 and to obtain additional data for missed farms.

Step 4. Final processing, tabulation, and analysis of the results.

D. Types of Measurement Error²

To define measurement errors, it is convenient to assume that there exists for each statistic obtained in a census a *desired* or *true value*. The error in a census statistic is simply the difference between the statistic and its true value.

It is useful to divide the measurement errors in a census conceptually into two components--*response variance and bias*. To do this, it is necessary to assume that the census is a repeatable process of measurement, i.e., that independent census enumerations could be carried out with some conditions, such as the form of the question-naire and written instructions, held constant but with other conditions, such as the particular persons selected as enumerators, and the time of day a particular farm operator is interviewed, subject to random fluctuations.³

For a given statistic, such as total land in farms, each of these repetitions of the census would produce a different value of the statistic. These values have a mean or expected value. The difference between this mean and the true value is the *bias*, and the variability of the values of the statistic (resulting from repetitions of the census enumeration) about their mean is the *response variance*. The net resultant of these two components of error is the *mean square error*, which is a measure of the variability of the values of the statistic about the true value.

For national and regional totals of most U.S. agricultural statistics, the error due to response variance is probably insignificant in comparison to the bias. The response variance arises from factors which tend to average out through compensating errors when large numbers of enumerators and/or respondents are involved, whereas the bias, although it may differ considerably for different areas or different censuses, is essentially independent of the size of the population. For smaller areas, such as counties and townships, however, response variance may be a significant source of error.

The above definitions are appropriate for census items for which data are collected from all farms. If some items are collected on a sample basis, sampling variability must also be considered along with the other components of error.

E. Summary of Results

The results of the coverage check are presented in section VII. A summary of these results is given in the paragraphs which follow.

The coverage check estimate for number of farms was 3,559,000, compared to the census count of 3,158,000. The difference, or net error, of 401,000 was 11.3 percent of the coverage check total. For total land and cropland harvested, the estimated net errors relative to the coverage check estimates were smaller, being 6.1 and 6.0 percent, respectively.

¹Coverage checks conducted prior to 1964 have generally been referred to in publications as "evaluation surveys." In this report we have adopted the term "coverage check" because there was a second evaluation survey, the panel evaluation survey, conducted in connection with the 1964 Census of Agriculture.

²For a more detailed and mathematical treatment of this subject, see appendix A, reference 2.

³In practice, of course, independent repetitions of a census cannot be realized; however, the model can reasonably approximate actual census conditions.

As in previous censuses, the relative net error in the farm count was greater for the smaller farms, whether size was measured in terms of total acres, acres of cropland harvested, or value of sales. The estimated net error for number of farms by value of sales was 3.1 percent of the coverage check estimate for farms with sales of \$10,000 and over, 5.4 percent for farms with sales between \$2,500 and \$9,999, and 19.3 percent for farms with sales of less than \$2,500. The estimated net coverage error for total value of sales was only 2.9 percent of the coverage check estimate.

For the most part, the levels of error observed in the 1964 Census of Agriculture did not differ greatly from those noted in the 1954 and 1959 censuses. An exception was the relative net error for number of farms with sales of less than \$2,500, which was estimated at 19.3 percent in 1964 compared to 13.7 percent in 1959.

Differences in reporting total acres resulted in 15.4 percent of the correctly counted farms (those for which there was a census farm corresponding to the farm identified in the coverage check) being classified in different size classes in the census and the coverage check. However, the net error in total acres for the same group of farms was only 2.8 percent.

In addition to small farms, those most frequently missed in the census were farms in and around urban areas, farms with nonresident operators, and farms started during 1964, the census reference year. Errors in reporting total acres (if the coverage check figure is taken as correct) occurred most frequently on large farms, farms with several landlords and farms which acquired or gave up one or more tracts during 1964.

Comparison of coverage check results with both edited and unedited census values for total land and cropland harvested showed that net changes resulting from clerical and computer edit operations were quite small in relation to the estimated reporting bias for these two items.

F. Associated Census Evaluation Work

The coverage check was only one of two studies designed to evaluate the quality of information collected in the 1964 Census of Agriculture. A report on the other study called the "Panel Evaluation Survey," will be published as chapter 2 of volume 3, part 7. The basic difference between the two was in the types of items investigated. The panel survey was aimed at items for which it was believed that data of sufficient accuracy for evaluation purposes could only be collected by periodic contacts with respondents throughout the census reference year, instead of in a one-time survey characteristic of the coverage checks. The items included in the panel survey were sales, purchases, and inventories of cattle, hogs, and sheep; production and sale of corn, oats, and alfalfa; and selected farm expenditures. The 1964 Coverage Check was limited primarily to measuring the accuracy of census data on number of farms, land in farms, and cropland harvested.

G. Uses of Earlier Coverage Check Results

Starting in 1950, the results of the coverage checks have been made widely available to users of agriculture census data. This has been done primarily through publication in the regular census of agriculture volumes (appendix A, references 5, 6, 7, 8, and 9), but also through the preparation of special articles and reports (appendix A, references 3 and 4).

Preliminary results of the coverage checks have been made available to the Department of Agriculture as quickly as possible for use in revising current series on farm numbers, land in farms, cropland and major crops.

From the beginning, the levels of undercoverage shown by the coverage checks have been a matter of concern to the Census Bureau. Several procedural modifications have been introduced in the census in an attempt to improve coverage. Among these are--

> 1. In the 1945 and earlier censuses, the enumerator was given the farm definition and told to obtain questionnaires only for those places qualifying as farms. In 1950 and subsequently, the enumerator was instructed to obtain questionnaires for all places with specified types of agricultural operations. Decisions as to which of these places were farms were made during the processing of the questionnaires in the central office. This procedure was adopted in an effort to improve the coverage of marginal operations which, according to the 1945 Evaluation Survey, had accounted for a large proportion of the missed farms.

> 2. Another measure designed to improve coverage was the use, in the 1954, 1959, and 1964 censuses, of a listing book for each ED (enumeration district). The enumerator in each rural ED was instructed to record in his listing book the location and identification of every dwelling and every place with no dwelling but with agricultural operations, provided it was partly or entirely located in his ED. The enumerator was paid for each listing and therefore had an added incentive to canvass his ED thoroughly.

> 3. Starting in the 1954 census, a Township Sketch form was used in selected counties in an attempt to improve coverage, especially of nonresident operations which had been shown in the 1950 Evaluation Survey to account for a disproportionately 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 form, which was divided into squares, each equivalent to a quarter section, or 160 acres; and to identify each bounded area with the corresponding questionnaire or listing The procedure has been restricted to number. counties which are in that part of the country covered by the rectangular public land survey system and which are known to have relatively high proportions of nonresident operators. Cost and the difficulty of sketching the smaller and more irregular tracts which predominate in areas not covered by the survey system precluded the use of this procedure for the whole country; however, its use in areas covered by the survey system was expanded in the 1959 census and again in the 1964 census

> 4. For all of the censuses covered by this discussion, enumerators have been provided with lists of large and special farms in their areas. These lists are assembled from many sources, but primarily from the previous census and the Department of Agriculture. The enumerator is required to obtain a questionnaire for each of these farms in his area or to explain why none was

needed. For the 1964 census, the number of farms included on these lists was substantially greater than in previous censuses.

5. Starting with the 1954 census, special procedures were adopted in selected counties in California, Florida, and Texas to facilitate a more complete and accurate enumeration of citrus groves.

6. In the 1954, 1959, and 1964 censuses, farm operators with fewer than 20 fruit and nut trees and grapevines were not asked to provide data on number of trees or vines and production for each variety. This was a direct result of findings from the 1950 Evaluation Survey, which showed that a large proportion of the operators with small numbers of trees and vines had failed to report them in the census.

H. Implications for Future Censuses

During the same period, however, there have been factors opposing coverage improvement. A few of these have been procedural, such as the decision not to use a special landlord-tenant questionnaire in the 1964 census. However, external influences may have had a more important effect. Among these have been the decreasing number, in many areas, of persons gualified and available for enumeration work, the gradually disappearing demarcations between suburban and rural-farm areas, and the increasing involvement of farm people in nonfarm employment and other off-farm activities, which makes it more difficult for enumerators to find them at home.

To the extent that coverage check results accurately reflect trends in coverage from 1950 to 1964, the net effect of these opposing factors on completeness of coverage appears to have been relatively small. Coverage may have deteriorated slightly over this period.

Coverage check results have shown that these continuing problems of undercoverage are largely concentrated among small farms which contribute little to total farm production. Another study⁴ which made use of materials from the 1964 coverage check, has indicated that equal or better coverage of the economically significant farms could be achieved by mailing census questionnaires to lists of potential farm operators. In combination, the results of these studies have been a key factor in the decision to switch to a mailout/mailback approach for the 1969 census.

⁴A brief description of this study, called the IRS match project, is presented in section VIII, "Special Studies in Connection With the Coverage Check."

Section II. 1964 Census of Agriculture

As background to the coverage check, a brief description of the census itself is included here.¹

In the United States, a census of agriculture is conducted every five years, in the years ending in 4 and 9. In 1964, the enumeration began on various dates between November 9 and November 23, except in Alaska, where it began onOctober 5. The beginning date for enumeration was set to follow the close of the harvest season in each State or portion of a State, and the enumeration was usually scheduled to be completed within 1 month from the date started.

A. Data Collection

The census is an enumeration of the <u>agricultural</u> <u>operations</u> carried on by individual persons, partnerships, corporations, and institutional units. The information collected provides data on the number of farms or agricultural operations in each county, each State, and for the Nation. It also provides an inventory of many of the basic agricultural resources and measures of agricultural production. Principal items investigated include agricultural lands, crop acreage and production, livestock numbers, livestock products, farm equipment, expenditures, receipts, and characteristics of farm operators.

Prior to the census enumeration, agricultural questionnaires were distributed by ruralmailcarriers to rural households in most areas of the country. A letter included at the beginning of the questionnaire requested the recipient, if he had agricultural operations of specified kinds, to fill in the questionnaire and hold it for the census enumerator, who would be calling for it in a few days. Approximately 8 million questionnaires were distributed in this manner; this was considerably more than the approximately 3 million farms in the United States.

A separate version of the questionnaire was used for each State, except in Texas, where two versions were used. The principal differences among the questionnaires for the various States were questions on crops harvested. Other differences included questions relating to fallow cropland, irrigation, forest products, and crops fertilized.

For enumeration purposes, the country was divided into 22,899 EA's (enumerator assignments),² each comprising an area which one enumerator could reasonably be expected to cover within 3 to 4 weeks.

In addition to the permanent staff members of the Washington and regional offices of the Census Bureau, the field organization of the census included 117 agriculture field assistants (supervisors), 1,800 crew leaders, and 23,000 enumerators. Basic training was given to enumerators and crew leaders in the form of a step-bystep home study program designed to present instruction in small parts and requiring approximately 14 to 16 hours to complete. In addition, crew leaders were given a 4-day training course which included actual enumeration, the completion and review of agriculture questionnaires and of other forms used by both enumerators and crew leaders, and the completion of a number of prescribed tests designed to measure the crew leaders' knowledge and understanding of the instructions, procedures, and assignments.

A listing form (see Form A2 of appendix B) was used to help the enumerator decide when to fill in a questionnaire. In rural ED's (where most farms are located) the enumerator was instructed to canvass his area completely, making a listing for--

1. Each occupied dwelling in the assigned area.

2. Each place on which there had been agricultural operations at any time in 1964.

With a few exceptions, each enumerator was provided with a map of his EA. As he recorded a dwelling or place on his listing form, he indicated its location by "spotting" it on his map, i.e., placing at the approximate location on the map, the number of the line on which the dwelling or place was listed on the listing form.

Enumerators were not given the precise definition of a farm, but instead used certain broad criteria to determine whether to obtain a questionnaire from the persons listed. Specifically, the enumerators were to fill a questionnaire for--

1. Every place considered by its operator to be a farm.

2. Every other place which had at least one of the following agricultural operations at any time during the year (except where the operator lived in another EA and also had agricultural operations at that location):

a. Any cattle, 4 hogs or more, 30 chickens or more, or 30 turkeys or ducks or more were kept.

b. Any grain, hay, tobacco, or other field crops were grown.

c. A combined total of 20 fruit trees, grape vines, and planted nut trees or more were on the place.

d. Any vegetables, berries, or nursery or greenhouse products were grown for sale.

In ED's located in urban areas and other areas with high ratios of dwelling units to farms, some modifications of the above procedures were made. A listing of all dwelling units was not required in built-up residential areas. For some ED's, operators of farms enumerated in the 1959 census were listed on the listing form prior to enumeration and the enumerator was required to visit and enumerate or otherwise account for each of these places. He was instructed to locate and

¹For a more detailed description of the census see appendix A, references 8 and 9.

²Each EA (enumerator assignment) was made up of one or more ED's, the ED being the basic geographic unit for enumeration.

enumerate any other places with agricultural operations in his ED.

B. Processing the Data

Most of the processing of the data from the 1964 Census of Agriculture was done on electronic computers. However, some precomputer operations were necessary. The principal processing operations were:

1. Prepunch processing. This phase included the following steps:

a. An initial review of each enumerator's work, primarily to verify the amount of payment he was entitled to receive. This review included checks for completeness of all required forms and correct application of the various procedures. Some EA's were returned to the field for additional work.

b. An evaluation of county coverage to determine whether agricultural operations were adequately covered and to initiate correspondence to improve coverage where evidence indicated incomplete or unsatisfactory enumeration.

c. A precomputer editing and coding operation. The editing involved reviewing the questionnaires for selected types of errors, omissions and inconsistencies. Corrections were made in cases where the differences or discrepancies would otherwise have had a significant effect on published data. Some manual coding was required for items such as miscellaneous crops and kinds of livestock and poultry for which a specific question was not included on the questionnaire.

2. Card punching and card-to-tape operations.

3. Computer processing. The 1964 Census of Agriculture was the first U.S. agriculture census to make extensive use of large-scale computer processing equipment. The system for processing

consisted of three main phases: a. The first phase involved editing the raw data, imputing for certain specified classes of missing and inconsistent responses, and producing county totals for all data. This phase included the classification of farms according to size, tenure, economic class, type of operation, etc., and the calculation and application of

weighting factors to produce estimates for those items which were collected only for a sample of farms. (See appendix B, reference 8, pp. XXVI-XXIX.) b. The second phase involved making corrections arising from professional review of the results from the first phase, and producing a set of preliminary tabulations by counties. These were used for the preliminary reports which were published by counties, States, regions, and

for the United States. The final product of this phase was a corrected, edited, weighted file of the detail data to be used in preparing final tabulations. Corrections which did not get included in the tape file were carried by hand as changes to the final tabulations.

c. The third phase consisted of preparing required tabulations for final publication.

Section III. Summary of Survey Design and New Procedures Used

This chapter describes the three samples used to obtain data for the coverage check, outlines the principal survey procedural steps, and describes two procedures used in the coverage check for the first time in 1964. A more detailed description of the survey design is presented in section VI.

A. Sample Design

The coverage check involved the use of two main samples plus a third sample which had a relatively minor role. The first, or *area sample*, was a sample of land segments which was selected to represent the entire area of the United States. Segments which were found to be located partly or wholly within urban places of 25,000 population and over were either eliminated from the interviewing completely or the part inside the city limits was eliminated if only a part of the segment was inside. The second, or *segment list sample*, was a sample of places enumerated in the 1964 Census of Agriculture. This sample also excluded places in urban areas of 25,000 population and over. The third, or *urban list sample*, was a sample of places in the urban areas not covered by the area and segment list samples.

To reduce costs, the area and list samples were designed to be overlapping so that, insofar as possible, the same farms would be included in both. The overlap involved having both samples associated with the same probability sample of land areas. The selection procedures for the sample of land areas are discussed in section VI. The nature and purpose of the three samples are summarized below.

The area sample consisted of the land areas included within 815 sample segments. An average segment contained about seven farms having all or part of this land inside the segment boundaries. This was a selfweighting sample with an overall sampling fraction of 3 in 4,000. The primary purpose of the area sample was to serve as a basis for estimating the number of farms missed in the census. However, it was also used to provide estimates of the number of farms correctly counted and underenumerated in the census. In addition, the area sample served to provide estimates for some types of overenumerated farms. (The terms correctly counted, overenumerated, underenumerated, and missed are described in section IV, "Concepts and Definitions.")

The segment list sample consisted of all places enumerated in the census whose locations had been marked within the boundaries of the 815 sample segments.¹ However, since there was considerable overlap between the two samples, only those list sample farms not contacted during the area sample canvass needed to be enumerated separately. The purpose of this sample was to obtain information for types of overenumerated places which would have been either highly difficult or impossible to detect using only the area sample.

The *urban list sample* consisted of a subset of persons reporting self-employment income from agriculture in the Bureau's Current Population Survey, plus a small selected subgroup not reporting self-employment farm income. The whole sample was restricted to urban areas having 25,000 population and over. The purpose of this sample was to cover those areas not covered by the area and segment list samples. This sample contained very few farms and its overall effect on the coverage check results was quite small.

B. Survey Procedures

In most surveys there is a single stage of enumeration followed by a processing operation. However, in the coverage check, several stages of data collection were interspersed with the preliminary processing stages so that the entire procedure became a more or less continuous process of obtaining and refining information reported on coverage check and census questionnaires.

The principal procedural steps involved in the enumeration and processing stages may be summarized as follows:

1. Initial (or Phase I) Field Enumeration. To obtain coverage check questionnaires for--

a. All places having land in the area sample segments.

b. All operators in the segment and urban list samples.

c. Selected persons associated with places enumerated in a and b above.

2. Preliminary Processing.

a. Central office review and edit of coverage check questionnaires.

b. Searching and matching to identify associated census and coverage check questionnaires.

c. Technical review, to classify area and list sample places as follows:

(1) No followup required.

(2) Mail or telephone followup required.

(3) Field followup required.

3. Mail or Telephone Followup.

a. To obtain additional data for coverage check farms for which no census questionnaire could be found.

b. To determine the correct figure when the coverage check and the census differed on total acres or acres of cropland harvested.

¹This marking operation, known as "spotting," is described in section II. In cases where the enumerator of an EA containing a sample segment failed to follow instructions with respect to marking his map, the "spotting" was performed by office personnel having no knowledge of segment boundary locations.

c. To obtain necessary additional information when this could be done with a few simple questions. (More complex cases were referred for field followup.)

4. Followup (or Phase II) Field Enumeration. a. To obtain additional coverage check questionnaires needed in connection with list sample cases.

b. To resolve complex differences between coverage check and census results for a subsample of cases.

c. To handle nonresponse to mail followup.

5. Final Processing.

a. Editing and review of results of mail and field followup.

b. Final search for census questionnaires matching coverage check questionnaires.

c. Technical review to classify coverage check and census questionnaires by census enumeration status.

d. Tabulation of results.

C. New Procedures: Weighted-Segment Approach to Estimation

In earlier coverage checks, only those area sample farms whose *headquarters* fell inside the sample segments were included in the final tabulations. The headquarters was defined as the residence of the operator, if he lived on the place, or the northwest corner of the place, if the operator did not live on the place. The *northwest corner* was defined as the furthest north of all points furthest west. If the headquarters of a farm were inside the segment, the entire farm was included in the coverage check estimate, regardless of how much land was outside the segment boundaries. On the other hand, if the headquarters were not inside the segment boundaries, the farm was not included in final tabulations, regardless of how much land was in the segment.

In 1964, all area sample farms having any land inside the sample segments were included in the coverage check estimate. These farms were weighted by the ratio

land in farm in sample segment. land in farm

The principal reason for changing over from the headquarters rule used in 1959 to the weighted-segment approach in 1964 was that the latter method minimized the sampling variability of the missed farm component of net error. Concern over the sampling variability of this component of error stems from the fact that there does not appear to be any practical alternative to the use of an area sample for coverage of missed farms. Since farms of any size can be missed, it would have been possible, in some samples, for one or two extremely large missed farms to dominate the estimate. With the weighted-segment method it was less likely that this would happen.

The weighted-segment approach also served to control the sampling variability of the reporting error component of net error.² Previously, the variability of this estimate had been controlled by using a *large farm list sample* to represent all places having 5,000 acres and over. The weighted-segment approach eliminated the need for such a sample.

D. New Procedures: Subsampling Phase || Followup Cases

Although the number and average area of sample segments did not differ appreciably between 1959 and 1964, the weighted-segment approach increased the <u>number</u> of farms associated with each sample segment in 1964 by a factor of between 2 and 3. The number of cases requiring field reconciliation in 1964 was proportionately increased. Because of the large costs which would have otherwise been incurred, it was necessary to subsample selected groups of cases.

In general, there were three types of cases requiring field followup:

1. Census questionnaires in the segment list sample for which no coverage check questionnaire had been obtained.

2. Coverage check questionnaires for which no census questionnaire was found.

3. Coverage check and census questionnaires which represented the same agricultural operation but which had discrepancies greater than the prescribed tolerances.

All cases involving either a missing coverage check or census questionnaire were returned to the field for followup. These cases were very important since they represented farms which might have been either missed, underenumerated, or overenumerated in the census.

Thus, only those cases involving discrepancies between coverage check and census questionnaires were subject to subsampling. For this purpose, cases having differences which exceeded tolerance levels were divided into three groups, to be subsampled at rates of one (certainty, that is, no subsampling), one-half, and onefourth. In general, higher subsampling rates were applied to those cases having the largest discrepancies.

²A description of the various components of net error is presented in section IV.

A. Bias

The basic aim of the coverage checks has been to obtain measures of bias, as defined by

B = T - X

- where T = desired or true value of a given statistic, such as number of farms or land in farms,
- and X = expected or average value of that statistic over all conceivable repetitions of the particular census procedure used.

The bias component of error may be further broken down into *coverage* and *content* error, where coverage error results from the erroneous inclusion or omission of farms in the census, and content error is error in the data obtained for farms which were properly included in the census. Most of the estimates of bias presented in this report contain components from both sources of error.

B. Net Error

As a practical matter, there is usually no way to obtain unbiased estimates of the T's. Instead, estimates are made of the *net error*, defined by

Z = Y - X

where Y = expected or average value of a given statistic over all conceivable repetitions of the intensive collection procedures used in the coverage check.¹

It was necessary, of course, to conduct the coverage check on a sample basis and to make estimates of the general form

$$Z' = Y' - X'.$$

Thus, the estimates of bias obtained from the study are themselves subject to the three kinds of measurement error:

Sampling variance, resulting from the collection of coverage check data on a sample basis.
 Response variance, since both the census and the coverage check represented only one of all conceivable trials or repetitions.

3. Bias, since Z, the expected value of Z', is not equal to B.

C. Definitions Applicable to Coverage Check and Census Questionnaires

A coverage check questionnaire filled in as a result of the coverage check procedures was said to represent a *coverage check place*. If, in addition, the coverage check place qualified as a farm according to the census definition, it was termed a *coverage check farm*. A coverage check farm may or may not have had part or all of its land inside the segment boundaries. A *principal coverage check farm* was a place having at least some land in the segment.

Similarly, a census questionnaire (A1) filled in as a result of the regular census procedures was said to represent a *census place*, and if the place qualified as a farm it was termed a *census farm*. A census place in the segment list sample was called a *specified census place*.

The coverage check farm and its characteristics had the same definitions as used in the census, with one exception. The reference date for the coverage check determination of land in each farm was fixed at December 1, 1964, whereas in the census the reference date for each farm was the date on which the questionnaire for that farm was filled in. Differences between census and coverage check results occurring solely because of the difference in reference dates were probably quite small in relation to differences arising from other sources.²

The term "land in place" meant the total net acres reported either in question 7 of the census questionnaire or in section II, column 15 of the coverage check questionnaire.³ If as a result of the clerical or computer edits a change was made in the census data, the edited census figure was used for comparison with the coverage check response. Also, if as a result of the reconciliation procedure a change was necessary in the coverage check schedule, the reconciled figure was used.

D. Control and Correspondence

The estimate of net error for number of farms does not provide any information about gross errors in coverage, e.g., the number of farms missed in the census or the number of places called farms in the census which were, in fact, not farms according to the census definition. For acreage items, an estimate of the net error by itself does not tell us how much of the error resulted from coverage check farms being missed in the census and how much was due to reporting errors for coverage check farms included in the census.

The concepts of *control* and *correspondence* were developed to overcome these deficiencies by providing a basis for associating individual coverage check farms and census farms. They were based on relationships between the land included in census farms and in coverage check farms. The definition of *control* was as follows:

1. A census farm whose land was not covered, even in part, by land in a coverage check farm, was

1, respectively, of appendix B.

¹A description of some of the more important coverage check procedures is presented in section V: Data Collection Techniques.

²See appendix A, reference 4, table 19.

³The coverage check questionnaire and relevant parts of the census schedule are reproduced in exhibits 3 and

not controlled by any coverage check farm. <u>Note</u>: A census farm whose land was completely covered by land in nonagricultural coverage check <u>places</u> could not be controlled by any coverage check farm.

2. A census farm whose land was covered, at least in part, by land in a single coverage check farm, was controlled by that coverage check farm. <u>Note:</u> Census farms classified as "duplicates"⁴ in the coverage check could not, by definition, be controlled by coverage check farms.

3. A census farm whose land was covered, at least in part, by land in more than one coverage check farm, was controlled by only one coverage check farm, determined as follows:

Rule 1. The coverage check farm covering the greatest amount of land.

Rule 2. If no one coverage check farm covered more land than all other coverage check farms, the controlling coverage check farm was determined by lot.

According to the preceding definition, a coverage check farm could control more than one census farm. The concept of *correspondence* was developed to designate, in such cases, one and only one of the controlled census farms as being associated with that coverage check farm. Specifically, the definition of correspondence was as follows:

1. If a coverage check farm controlled only one census farm, that census farm was designated as corresponding to the coverage check farm.

2. If a coverage check farm controlled more than one census farm, the one designated to correspond to the coverage check farm was determined according to the following rules:

Rule 1. The census farm whose acreage agreed most nearly with the acres in the coverage check farm.

Rule 2. If rule 1 did not provide a unique solution, the census farm that was in the same name as the operator listed for the coverage check farm.

Rule 3. If neither of the above rules provided a unique solution, the corresponding census farm was selected by lot.

E. Classification of Coverage Check and Census Farms by Census Enumeration Status

The concepts of control and correspondence were used to define a set of coverage classifications which in turn were used to analyze the positive and negative components of the *net error* for number of farms and other items.

A coverage check farm could be assigned to one of three classifications:

1. <u>Correctly counted</u>. Those coverage check farms controlling one or more census farms. Cases were separated into two categories:

a. Those coverage check farms controlling one and only one census farm.

b. Those coverage check farms controlling more than one census farm. <u>Note:</u> For such cases, one census farm was designated as the corresponding census farm; the remaining one(s), classified as overenumerated.

2. Underenumerated. Those coverage check farms covering part of the land in a census farm but not controlling any census farm. (This can occur when the census farm is controlled by a different coverage check farm.)

Two situations were distinguished:

a. Those coverage check farms for which the operator was listed in the census (but not enumerated).

b. Those coverage check farms for which the operator was not listed in the census.

3. <u>Missed</u>. Those coverage check farms not covering land on any census farm. Cases were classified into one of three subgroups:

a. Those coverage check farms not listed in the census.

b. Those coverage check farms which were listed in the census but not enumerated.

c. Those coverage check farms which were enumerated in the census but subsequently rejected as farms during the census edit.

A census farm could be assigned to one of two categories:

1. Correctly enumerated. Those census farms controlled by and corresponding to a coverage check farm.

2. <u>Overenumerated</u>. Census farms grouped under this classification were of two types:

a. Those controlled by but not corresponding to a coverage check farm. (See correctly counted farms, part b, above.)

b. Those not controlled by any coverage check farm. Three situations were distinguished:

(1.) The census farm was covered by a nonagricultural coverage check place.

(2.) The census farm could not be found in the coverage check.

(3.) The census farm was designated as a "duplicate."

Examples

I. A place enumerated in the census was incorrectly shown to have sufficient agricultural operations to qualify as a farm. This census "farm" was not controlled by any coverage check farm and was therefore classified as overenumerated.

2. A partnership operation was reported in the census on two separate questionnaires, one for each partner, and each accounting for half of the land. The coverage check questionnaire covering the partnership and the census farm designated to correspond to it were classified as correctly counted and correctly enumerated, respectively; the other census farm as overenumerated. The net error for land in farms was, of course, zero.

3. A farm operator received a census questionnaire in the mail, completed it, and gave it to the census enumerator who called for it. Two days later, another enumerator, who was out of his assigned area but did not realize it, obtained a second questionnaire from the operator's wife who did not know that a questionnaire had already been turned in. This duplication was not detected in the census processing. In accordance with the note given in

⁴For coverage check purposes, duplicate census questionnaires involved only those cases which were not detected during the regular census edit. In such instances, one census questionnaire was designed as the "original" census farm and the others were classified as "duplicates." The concepts of control and correspondence were applied only to the "original" census farm.

part 2 of the control definition, one of the two census farms was selected to be the "original" census farm and the other a "duplicate."

4. Mr. Adams owned 160 acres. In 1964 he had his own farming operations on 60 acres and the remaining 100 acres were rented out to Mr. Brown. Mr. Brown owned 20 acres in addition to this 100 acres. In the census, the questionnaire for Mr. Adams included all operations on the 160 acres he owned, and did not show any land being rented out. No census questionnaire was filled in for Mr. Brown. By application of rule 1 under part 3 of the control definition, Mr. Adams' 60-acre coverage check farm did not control his census farm, and was subsequently classified as underenumerated. Under the same rule, Mr. Brown's 120-acre coverage check farm controlled Mr. Adams' 160-acre census farm and these were subsequently classified as correctly counted and correctly enumerated, respectively. The resulting net error for farms and for land in farms was determined as follows:

a. Mr. Adams' 60-acre coverage check farm vielded

-1 farm and -60 acres

b. Mr. Brown's 120-acre coverage check farm yielded

0 farm and +40 acres

c. Net total: -1 farm and -20 acres

F. Components of Net Error

Using the classifications defined above, it is possible to rewrite the formula for the net error of a given statistic as follows:

$$Z = Y_M + Y_U + (Y_C - X_C) - X_O$$

where

- Y_M = expected value of the statistic for coverage check farms missed in the census,
- Y_U = expected value of the statistic for coverage check farms underenumerated in the census,
- Y_C-X_C = difference in the expected values of the statistic for correctly counted coverage check farms and for the corresponding correctly enumerated census farms,
- X_O = expected value of the statistic for overenumerated census farms;

and

Y = $Y_M + Y_U + Y_C$ = expected value of the statistic for the coverage check procedure.

$$X = X_C + X_O =$$
 expected value of the statistic
for the census procedure.

Section V. Data Collection Techniques

A. Introduction

The main objective of the coverage checks has been to obtain measures of bias. This is done by using the best means available and feasible to collect accurate information from a sample of farms. These results are then compared with census results to determine the accuracy of the latter.

Despite the intensive procedures used in the coverage check, the results are not perfect. However, it is believed that the results are more accurate than those obtained in the census and provide a useful standard against which to measure the quality of the census enumeration.

Most of the data collection techniques used in the coverage check could theoretically be applied to the census itself if the resources were available. A few, however, are based on information or experience derived from the census. For example, preliminary coverage check results are compared with census results, and further investigation of differences is made when it is not clear why the difference occurred. Also, the best available census crew leaders and enumerators are hired as supervisors and enumerators in the coverage check and are given training more intensive than that provided for the census.

Some of the more important data collection and processing techniques are discussed in the following paragraphs.

B. Use of More Intensive Canvassing and Screening Procedures

As in the regular census, coverage check enumerators used a listing form to identify farm operators and agricultural operations. However, the listing operation in the coverage check differed from that used in the census in several important respects.

First, a more complete listing was made of persons associated with places having agricultural operations. Specifically, a listing was made for--

1. All household members 16 years of age and over for families living in the segment;

2. All household members 16 years of age and over for persons having control of land in the segment but not living there;

3. All persons associated with the agricultural operations of persons listed in 1 and 2 above such as landlords, tenants, and partners.

Second, the coverage check enumerator had to account for each tract of land inside his segment, including those tracts used for nonagricultural purposes, such as cemeteries, golf courses, school grounds, and airports.

Another difference between the coverage check listing form and the census listing form was in the screening questions used to determine whether the place had agricultural operations.¹ A comparison of the listing forms for the coverage check and census (appendix B, following detailed tables), shows that the screening questions used in the coverage check were more detailed and used lower cutoffs than those used in the census. For example, the question on income from sale of agricultural products used in the coverage check was not even asked in the census, and cutoffs were lowered from specified numbers of cattle and hogs in the census to any livestock in the coverage check.

C. Use of a More Detailed Questionnaire Limited to the Investigation of a Few Items.

The coverage check questionnaire was designed to provide detailed information on a few basic items, in the belief that such an approach yields more accurate data than that obtained by less intensive procedures. These data then, provide a standard against which the census observations may be compared. Thus, the questionnaire investigated the respondent's land, including its control and use, on a tract-by-tract basis, using a repetitive or probing type of questionnaire. In addition, information was obtained, if at all possible, from the person directly in charge of the operation even if this required additional callbacks.

To determine net acres in place the census questionnaire requested information on total acres for land owned, land rented or leased from others, land managed for others, and land rented or leased to others. (See appendix B, questions 3 to 7.) By contrast, the coverage check questionnaire investigated each tract of land in which the operator had an interest of any kind at any time during 1964. (See section II of the coverage check questionnaire, appendix B.) For each incoming tract, i.e., land owned by the operator, rented or leased by him from others, or worked on shares by him for others, etc., inquiry was made as to when he had acquired it and whether he still owned, leased, or worked it on shares. If the tract was not owned by the operator, the leasing arrangement was determined. Similarly, for each outgoing tract, information was obtained as to when this land was turned over to the tenant or sharecropper, when it was returned to the operator (if it had been), and what the arrangement was

One reason for using a more complete listing is that farms missed in the census are frequently operated by persons who are associated with some other agricultural operation. For example, a farm operator's son living at home or a hired worker living in town might also have agricultural operations of his own which were overlooked during the census.

¹A coverage check questionnaire or a census questionnaire was filled in for each place having agricultural operations as determined by answers to the screening questions contained on the EPA2 or A2, respectively. This did not, of course, necessarily mean that the place would be counted as a farm.

or had been for the use of the land. The questionnaire was designed to determine from which of the incoming tracts each outgoing tract was taken.

This tract-by-tract investigation, coupled with the repetitive, probing nature of the questionnaire, was intended to reduce the likelihood of any land, either incoming or outgoing, being forgotten (or because of misunderstanding, being deliberately omitted) by the respondent. Thus the burden of deciding whether or not an individual was in control of and, therefore, should report on a given tract of land was shifted from the respondent to the interviewer and eventually to the office processing staff.

Although most of the questionnaire was devoted to obtaining data related to the land in the place, enough information on sales of farm products was obtained so that the characteristics of coverage check farms in terms of economic class and type of farm could be ascertained. Following the initial matching operation, if it appeared that a census questionnaire was never filled for the place, then one was obtained by mail or by a second interview in order to obtain the full range of census information about the place.

D. Use of Aerial Photographs and Sketch Maps

Aerial photographs were provided in most cases for use in determining exact segment boundaries and as an aid in preparing sketch maps of the land controlled by each respondent. In cases where the aerial photograph differed from the enumerator's county map with respect to boundary location, the aerial photograph boundary took precedence. Similarly, if a road, stream, or other segment boundary had changed since the aerial photograph was taken, the location of the old road, stream, or other segment boundary was used as the segment boundary. An example of an aerial photograph is presented in figure 1, which shows the boundaries of a typical segment and the segment designation number. In figure 2 the segment boundaries are shown on a county map corresponding to the same area.

Sketch maps of the land controlled by each respondent were prepared using a transparent overlay on the aerial photograph or a special sketch form in cases not covered by an aerial photograph or having tracts too small to be shown clearly on the overlay. As the enumerator determined the net acres in each tract (section II, column 15 of the coverage check questionnaire), he outlined the tract boundaries on his sketch map, showing it to the respondent, if possible, for the respondent's concurrence.

The purposes of the sketch map were to aid the enumerator in accounting for all land in the segment and to help estimate the acreages of tracts or parts of tracts. The latter purpose occurred most frequently in one of the following situations:

1. When the respondent did not know how many acres were in the tract;

2. When the respondent's answer did not seem consistent with the size of the sketched area;

3. When some of the acreage of a tract was both inside and outside the segment boundary, especially where the segment boundary was an imaginary line.

To estimate acreages, the enumerator used a transparent grid sheet having a scale equal to that of his sketch map. Depending on the scale, one small square represented a certain number of acres (usually 1) and each larger square some multiple of that acreage (usually 25). By counting the number of squares completely inside the boundaries, and estimating the acres represented by those squares partly in and partly outside the tract boundaries, an estimate of the total acreage could be obtained.



FIGURE 1 Example of aerial photograph showing a typical segment with segment designation number.

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FIGURE 2 Example of county map for area covered by aerial photograph in figure 1

Section VI. Sample Design, Processing, and Estimation

A. Sample Design

As noted in section III, the area and segment list samples were both associated with the same sample of land areas. The design of this sample of land areas is described below.

> 1. <u>Background considerations</u>. Whereas the same sample of land areas was used in the 1954 and the 1959 evaluation surveys, by 1964 it was felt that this sample should be replaced. There were two principal reasons for this. First, the old sample was based on measures of size derived from the 1950 Census of Agriculture and, as a result, was likely to be less efficient than one based on more recent data. Second, it was felt that the burden of response associated with the coverage check procedures should be shifted to a new set of respondents.

> When work started on the sample design it appeared desirable to select a sample which could serve, in addition to the coverage check and the panel evaluation survey described in section I, other major programs related to the 1964 Census of Agriculture. One of the more important potential uses of the sample was for a series of sample surveys on farm labor. Another possible use was for a sample survey to be taken 1 year following the census, as had been done following the 1959 census.

> Consideration of the multiple uses of the new sample required taking into account the fact that a much smaller number of first-stage units (PSU's) would be needed for the evaluation surveys than for the sample surveys of agriculture and farm labor. It was therefore decided to select a relatively large sample of first-stage units from which a subsample would be selected for the evaluation studies.

> Taking into account the sampling fraction used in the 1959 coverage check, the expected reduction in number of farms between 1959 and 1964, and various other factors, it was concluded that an overall sampling fraction of 3 in 4,000 would be appropriate for purposes of the coverage check. This sampling fraction constituted a 12-1/2 percent increase as compared with the overall fraction of 1 in 1,500 used in 1959. However, there was a compensating decrease due to the expected decline in number of farms from 1959 to 1964 which was estimated to be about 16 percent.

> 2. <u>Sample selection</u>. The sample of land areas used in the coverage check was selected in three principal stages as follows:

a. A set of 200 PSU's (primary sampling units) was selected, where each PSU was a county or group of counties.

b. Census EA's (enumerator assignments) were then selected within the 200 sample PSU's.

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Approximately 750 EA's were selected, each containing an average of about 140 farms.

c. Area segments were finally selected within EA's at a rate slightly greater than one per EA. The resulting sample contained 815 area segments distributed among 392 counties in 44 States.

3. Selection of primary sampling units. The results obtained from previous coverage checks suggested that the number of PSU's for the 1964 evaluation surveys should not differ greatly from the 196 which had been used in 1954 and 1959. However, to meet the other anticipated needs, the initial set of first-stage units selected consisted of 442 PSU's, from which a 200 PSU coverage check sample was drawn. To reduce the amount of work involved in the sample selection and also achieve certain other advantages, the PSU's were defined in much the same way as they were defined in the Bureau's Current Population Survey (CPS). That is, the approximately 3,100 counties and independent cities in the United States were grouped into about 1,850 PSU's, where each PSU consisted of either a single county or two or more contiguous counties.

Several kinds of controls were used in selecting the first-stage units. The major type of control involved a geographical stratification of units so that in general one PSU would be selected within each stratum. In addition, PSU selection was controlled in order to achieve a maximum amount of overlap with the Current Population Survey PSU's. This was done so that CPS interviewers could be used, if available, in the coverage check enumeration. The overall effect of this control was that 197 of the 442 PSU's selected were also in the CPS sample.

The sampling processes were also designed to control the balance between metropolitan and nonmetropolitan PSU's. Due to the greater difficulty of achieving complete coverage in congested areas, those PSU's containing Standard Metropolitan Statistical Areas were given probabilities of selection about 30 percent greater than would otherwise have been the case. On the other hand, probabilities for PSU's containing appreciable numbers of large farms (in terms of sales) were reduced because a separate one-stage sample of these large farms was to be selected for the agriculture and farm-labor sample surveys and because coverage of these economically significant places is somewhat easier to achieve.

The probability of selection for each PSU was based on a measure of size related to the extent of its agricultural activity. More specifically, after making an appropriate reduction for certain large farms (for the reasons indicated in the preceding paragraph) the assigned probabilities were made approximately proportional to the quantity $N_i \sqrt{V}_i$ where N_i was the 1959 number of

farms in the i-th PSU and \overline{V}_i was the average value of farm products sold per farm in the i-th PSU (1959 census).

The distributions of the 442 and 200 PSU sample by census region are shown below.

| Census region | PSU's in initial sample | PSU's in coverage check sample |
|---|----------------------------|--------------------------------|
| Total | 442 | 200 |
| Northeast North Central South West | 38 202 136 66 | 14 82 . 80 24 |

4. Selection of second-stage units. At the second stage, EA's (enumerator assignments as defined for the 1959 Census of Agriculture) were selected within each of the 200 PSU's. It was planned that each EA selected at the second stage would have one segment selected within it at the third stage. However, if an EA was selected more than once at the second stage, an additional segment was selected within it at the third stage for each additional time the EA was selected. As will be explained below, the EA's were selected systematically; and as a result the only time an EA could be selected more than once was when its measure of size exceeded the sampling interval. In the great majority of cases, however, EA's were selected for the sample one time only.

The selection of EA's for the coverage check was accomplished by first taking a sample three times larger than that ultimately required. This process provided additional EA's for possible use in other surveys and also made it possible to select the coverage check subset from the following points of view:

a. There would be neither an over-representation nor an under-representation of EA's containing cities of various sizes.

b. The amount of travel required to go from area to area within the PSU would not be excessive.

EA's were selected systematically within PSU's according to the following steps:

Step 1. Determining a measure of size for each EA. Each EA was assigned a measure of size equal to the number of segments into which the EA would be divided if selected. The number of segments assigned to each EA was based on that EA's number of 1959 census farms. Using the census farm count for EA's, segments were defined to contain, on the average, 3-1/4 farms, except in the South, where each segment contained an average of 3-3/4 farms.

Step 2. <u>Selection of EA's at three times the</u> <u>final rate</u>. For reasons explained above, a sampling interval was calculated to yield a a sample three times that needed for the coverage check. The sampling interval within a PSU was made equal to the quantity

(1/3) (P_i) (4,000/3),

where P_i is the probability of selection of the

i-th PSU. EA's were ordered according to EA number and their measures of size were cumulated. Then, starting with a random number between zero and the sampling interval, the first EA selected was the first one having a cumulative measure of size greater than the random start number. Successively selected EA's were those having the first cumulative measures of size greater than the random start number the random start number. Successively selected EA's were those having the first cumulative measures of size greater than the random start number plus k times the sampling interval, where k was an integer equal to 1, 2, 3, ...

Step 3. <u>Reordering of the selected EA's</u> prior to subsampling. The selected EA's were reordered in such a way that the systematic selection of every third EA would prove satisfactory in terms of the points of view stated above, regardless of the start selected.

5. Selection of third-stage units. Within each EA chosen at the second stage, one or more segments (usually one) were chosen with equal probabilities. A two-stage procedure was used in order to minimize the amount of work required. The process involved an initial selection of "chunks" of land areas which were then divided into segments. This division or segmenting was generally accomplished with the aid of aerial photographs.

B. Searching and Matching

Following the phase I field work, a searching and matching operation was conducted. This procedure was carried out for each census of agriculture questionnaire in the segment list sample (called a <u>specified A1¹</u>) and for each coverage check questionnaire containing land inside segment boundaries (called a <u>principal EPA1²</u>). The purpose of this operation was to match each specified A1 with an EPA1, although not necessarily a principal EPA1, and to match each principal EPA1 with an A1, again not necessarily a specified A1.

For the specified A1's the search was relatively easy since only the coverage check materials for the segment associated with the particular A1 were searched. For the principal EPA1's the search was much more involved. Here the census materials for the census enumeration area in which the segment was located, and for each adjoining enumeration area were searched. It should be noted that a census enumeration area was considerably larger than a coverage check segment and therefore took longer to search.

C. Final Search

Measures of the completeness and accuracy of census results depend heavily on how well the coverage check search operation succeeds in locating census questionnaires for which a complete or partial match did in fact exist. For this reason, a particularly intensive final search was conducted for the census questionnaires of all coverage check farms tentatively classified as missed.

The operation involved searching the census listing forms (A2's) for the name of the operator and any other

¹The census questionnaire was popularly referred to by its form number.

²As with the census questionnaire, the coverage check questionnaire, was referred to by its form number.

person associated with him who had not been searched for during preliminary processing. If the coverage check place had 50 acres or more, the search included all persons connected with the person in charge, regardless of earlier search attempts. The census listing forms which were searched included those for the following types of EA's (enumerator assignments):

1. The EA containing the sample segment.

2. All contiguous EA's in the same county.

3. All contiguous EA's in other counties, any parts of which were within 5 miles of the sample segment.

4. Other EA's in which the person in charge lived or had other land.

For all places having 200 acres or more and for certain smaller places, an extended search was conducted if no A1 was found as a result of the above procedure. The extended search involved expanding the preceding search operation to include:

1. The remaining (unsearched) listing forms for the county containing the segment.

2. The census questionnaire folios for the entire county.

3. The listing forms and census questionnaire folios for any other county in which some of the land was located or in which the operator lived.

D. Grouping Related Coverage Check and Census Farms

To understand the need for grouping, consider the following two cases involving groups of related coverage check and census farms:

> 1. A single coverage check farm is enumerated in the census as two farms with the same total area as the coverage check farm, i.e., there is a net error (overcount) of one farm in the census, but no difference in total acres.

> 2. A place enumerated in the census as one farm is exactly equal to two coverage check farms, i.e., there is a net error (undercount) of one farm in the census, but no difference in total acres.

In case 1, the entire group--a coverage check farm and two census farms--would either be included or excluded from the sample estimate, depending on whether or not the coverage check farm was a principal coverage check farm, i.e., whether or not at least part of its land was inside the segment boundaries. If it were a principal coverage check farm, then both of the census farms it controlled would be included in the estimate--one as a corresponding census farm and the other as an overenumerated census farm. There would be no contribution from this group to the estimated net error for total land, since the data for all of the farms in the group would receive identical weights.

In considering the case involving two coverage check farms and a single census farm, let

- a = acres in the census farm;
- $A_1 = acres$ in the controlling coverage check farm;
- A_{1S} = acres in segment of the controlling coverage check farm;
- A₂ = acres in the noncontrolling coverage check farm; and
- A_{2S} = acres in segment of the noncontrolling coverage check farm.

Then, the contribution of this group to the estimated net error for total land may be expressed as follows (the overall weighting factor of 4,000/3 can be ignored for this illustration):

$$\hat{d} = \alpha \left(\frac{A_{1S}}{A_1}\right) - A_1 \left(\frac{A_{1S}}{A_1}\right) - A_2 \left(\frac{A_{2S}}{A_2}\right)$$

The problem for this group stems from the fact that although its expected value, i.e., its average value over all segments in the population, is equal to zero, its value for the individual segments containing these farms is generally a nonzero quantity. The zero expected value is due to the relationship

$$A_{1} + A_{2} = a$$

and the fact that the expected values of the weighting factors are the same; that is,

$$E\left(\frac{A_{1S}}{A_{1}}\right) = F\left(\frac{A_{2S}}{A_{2}}\right).$$

Thus, the group contributes to the variance of the estimate of net error in total acres even though it does not contribute to its expected value.

It should be clear that in the special case where $\rm A_{1S}$ is equal to $\rm A_1$ and $\rm A_{2S}$ is equal to $\rm A_2$, that

$$\hat{d} = a - A_1 - A_2 = 0$$

Thus, if both coverage check farms were completely inside the segment boundaries the estimated net error for total land would be zero and the need for grouping would not exist. On the other hand, if one of the coverage check farms was completely outside the segment boundaries, the estimated net error would be computed from

 $\hat{d} = -A_2 \frac{A_{2S}}{A_2}$

or

 $\hat{d} = (a - A_1) \frac{A_{1S}}{A_1}$

depending, respectively, on whether the controlling or noncontrolling coverage check farm was outside the segment boundaries.

The types of cases discussed in the preceding paragraph resemble, in one respect, the 1959 coverage check situation where use of the headquarters rule³ resulted in considering a farm as totally inside or outside the segment. In fact, actual grouping in 1964 was restricted to cases having one of the two coverage check farms in the group completely outside the segment. However, if the need had been recognized earlier, other types of groups would probably have been included also.

For purposes of obtaining a weighting factor, cases included in a particular coverage check group were combined into what was termed a "pseudo farm." Each

³See section III for a definition of the headquarters rule.

coverage check farm in the group was weighted by the quantity

combined acreage inside the segment.

In this way the estimated (positive) net error in total acres for the census farm and coverage check farm controlling it, and the estimated (negative) net error in total acres for the underenumerated coverage check farm were equal, except for sign, and did not, therefore, contribute to the variance of the net error.

E. Estimation Procedure

Two basic types of estimates were made from thecoverage check sample data. The first (referred to below as type I) was used for those items for which data were available from the full coverage check sample, such as total farms and number of farms by economic class, type, tenure, residence of operator and year began operation. The second (referred to as type II) was used for those items affected by the subsampling for purposes of the phase II followup to reconcile differences in total acres and acres of cropland harvested. Thus, type II estimates were used for total acres and acres of cropland harvested and for number of farms by size and by acres of cropland harvested.

> 1. <u>Type I Estimates</u>. With the sample design used, unbiased estimates of population totals could be obtained by adding together individually weighted cases from the area and segment list samples. Area sample cases were weighted by the quantity

$\frac{4,000}{3}$ x $\frac{1}{1}$ and in farm in sample segment, $\frac{1}{1}$ and in farm

and list sample cases were weighted by the quantity

It was then possible to combine these weighted cases to obtain, for any given item, an estimate of the net error,

$$Z' = Y_{M'} + Y_{U'} + (Y_{C'} - X_{C'}) - X_{O'}.$$

Estimates of Y_{M} ', Y_{U} ' and Y_{C} ', the coverage check

totals for missed, underenumerated and correctly counted farms, were obtained from the area sample. The estimate of X_{C} ', the census total for correctly enumerated farms, was based on census farms corresponding to coverage check farms in the area sample. The estimate of X_{O} ', the census

total for overenumerated farms, was based partly on overenumerated farms controlled by coverage check farms in the area sample and partly on overenumerated farms in the list sample, depending on the specific type of overenumeration involved.

Estimates of coverage check totals were obtained by adding the estimated differences, Z', to the published census totals, X, i.e.,

$$\hat{Y}_{1} = X + Z' = X + \left[Y_{M}' + Y_{U}' + (Y_{C}' - X_{C}') - X_{O}'\right].$$

For total number of farms the component $(Y_C' - X_C')$ vanished since one correctly enumerated

census farm, by definition, corresponded to each correctly counted coverage check farm. This was also true for farms classified by type and by economic class, since the census type and economic classifications were accepted for correctly counted farms. These classifications are determined on the basis of value of farm products sold, an item which was not investigated in detail in the coverage check. For farms classified by tenure, residence, and year began operation, however, it was possible for the census and coverage check classifications for corresponding farms to differ, so the factor $(Y_C' - X_C')$ was not, in general, zero.

Estimates of the component Y_M ' for selected crop, livestock and poultry items, were computed using the data from census-type questionnaires completed for missed farms. For these items, estimates of the form

$$\hat{Y}_2 = X + Y_M'$$

are presented in section VII; however, it must be remembered that these estimates do not include components for underenumerated or overenumerated farms, nor for reporting errors on correctly counted farms.

2. Type II Estimates. The only cases subject to subsampling in the phase II followup operation were those having acreage discrepancies (total acres or cropland harvested or both) between coverage check and census questionnaires. Consequently, the only component of net error affected by the subsampling was that for correctly counted farms, i.e., $(Y_C' - X_C')$.

In order to make full use of the data available for correctly counted farms, a difference estimate was used for the items affected by subsampling. For a particular farm in the subsample there were, in general, three different responses (census, preand post-phase II) for the same item of information. Thus, for the j-th farm in the i-th stratum (where the stratum classification was based on the extent of difference between census and phase I results and determined the subsampling rates to be used), let

 $x_{ii} =$ the census result,

y_{ii} = the pre-phase II coverage check result,

z_{ij} = the post-phase II coverage check result,

and consider the differences

$$d_{ij} = z_{ij} - x_{ij}$$

and

$$e_{ij} = y_{ij} - x_{ij}$$

Using these definitions, various estimates of census-coverage check differences may be constructed as follows:

$$d'' = \sum_{i} k_{i} \sum_{j}^{m_{i}} d_{ij}$$
$$e'' = \sum_{i} k_{i} \sum_{j}^{m_{i}} e_{ij}$$

$$e' = \sum_{\substack{i \\ j}}^{n} e_{ij}$$

where

- $m_i =$ number of cases in the i-th stratum included in the subsample,
- $n_i =$ number of cases in the i-th stratum subject to subsampling,
- k_i = 1, 2, or 4 depending on the subsampling rate for the i-th stratum (i.e., included with certainty, one-half subsample, or onefourth subsample).

By letting

$$d = E(d'')$$

and

$$e = E(e'') = E(e')$$

it is seen that d may be regarded as a more precise measure of the net error for correctlycounted farms, since it is based on the "final" findings of the phase II reconcilation following the phase I independent enumeration and matching, whereas e is based on the "preliminary" results from phase I and matching only.

Consequently, an estimate of the form

$$\hat{d} = d'' - (e'' - e')$$

was used to estimate the difference component $(Y_{C} - X_{C})$ in th type II estimate. Here

$$E(\hat{d}) = d$$

and the sampling error of \hat{d} was expected to be smaller than that of d', because of the positive correlation between d and e.

A. Estimates of Net Error

Estimates of net error for number of farms, land in farms, and cropland harvested are presented in table 1, together with corresponding estimates from the 1954 and 1959 evaluation programs. Estimates of net error for number of farms by size, economic-class, acres of cropland harvested, tenure, and type of farm are given in tables 2 to 6, together with corresponding figures from the 1959 coverage check. The tables also include estimated totals, which are based on the sum of the estimated net error and the published census figure for each item.

The coverage check estimates of net error for most items include a component for reporting error on correctly counted farms. Thus, the estimates of net error for land in farms, cropland harvested, and for number of farms by size, acres of cropland harvested, and tenure reflect this component. However, estimates of net error for number of farms by economic class and type of farm reflect only errors resulting from overenumerated, underenumerated, and missed farms.

The estimates presented in tables 1 to 6 are accompanied by estimates of sampling variability, expressed as standard errors. The chances are about 2 out of 3 that the difference between an estimate based on the coverage check sample and the figure that would have been obtained by applying the coverage check procedures to all farms would be less than the sampling error shown. The chances are about 99 out of 100 that this difference would be less than 2-1/2 times the sampling error.

The estimates of net error are also subject to nonsampling error, as explained in section IV, paragraph B. There are two aspects of the coverage check procedures which make it probable that the estimates of net error for number of farms exceed the true bias. First, the difficulty of carrying out searching and matching procedures is such that some of the census farms corresponding to coverage check farms may not have been located, especially in the case of smaller farms, for which less intensive search procedures were used (section VI, paragraph C). Second, once a census farm corresponding to a coverage check farm was located, there was no systematic attempt to search the census files further for duplicate questionnaires, so that some cases of duplication in the census may have been overlooked.

Some of the basic results which may be noted from tables 1 to 6 are as follows:

1. Relative net errors for acreage items are smaller than the relative net errors for number of farms. (table 1)

2. The estimated relative net error for number of farms was somewhat larger in 1964 than it was in 1959 and 1954. However, the estimates of relative net error for acres of land in farms were not significantly different for the 1964, 1959, and 1954 censuses. (table 1)

3. Relative net errors for number of farms by size were largest for "small" farms, whether one defines size in terms of land in farms, dollar value of sales, or acres of cropland harvested. (tables 2, 3, and 4)

4. For farms with sales of \$2,500 and over (classes I to V), the estimated net errors for 1964 and 1959 did not differ significantly. However, for farms with sales of less then \$2,500, the estimated net error was 19.3 percent in 1964 as compared with 13.7 percent in 1959.

It appears, therefore, that the increase in the estimated relative net error for total farms resulted primarily from less complete coverage of marginal farms in 1964. Farms in this category, i.e., those with sales of less than \$2,500, accounted for only about 3 percent of the total value of farm products sold in 1964. The larger net error for marginal farms in 1964 may have resulted from one or more of the following factors:

a. The screening questions used in the 1964 enumerator canvass to identify persons with agricultural operations were less detailed and used higher cutoffs than those used in 1959. For example, horses, sheep, and goats were not mentioned in 1964; and cutoffs were raised from 20 to 30 for poultry and from 1 to 4 for hogs. Thus, farms with operations below the cutoffs used on the 1964 listing form but equaling or exceeding the 1959 cutoffs (e.g., a farm with 2 hogs or 25 chickens) had no chance of enumeration in the 1964 Census unless they answered "yes" to the question "Does this person...operate a farm (or ranch)?" In 1959 farms in the same category would have been enumerated on the basis of responses to the other screening questions.

b. The criteria used in the 1964 computer edit to determine which enumerated places should be retained as farms were more lenient than those used in the corresponding clerical operation in 1959. For example, a place with 10 acres or more was retained as a farm in 1964 if it had 50 chickens as compared with 100 required in 1959, or if it had 5 hogs and pigs as compared with 10 required in 1959. Places with sufficient operations to be retained in 1964 but not in 1959 were, in all probability, more likely to have been missed than other farms with sales of less than \$2,500.

c. An increasing proportion of the marginal farms are located in areas which are primarily nonfarm residential. Farms in these areas are more difficult for census enumerators to locate.

COVERAGE CHECK

Table 1. Estimates of Net Error for Number of Farms, Land in Farms, and Cropland Harvested, for the United States: 1954, 1959 and 1964

| | | Reported in census | | Estimated net error | | | | | |
|---|-------------------------------|-------------------------------|----------------------|-------------------------|--------------------|----------------------------|----------------------|-------------------------|--|
| Consue year and item | Estimated | | Percent of | | Percent of | Sampling error of estimate | | | |
| | lolai | Amounts | estimated total | Amount | estimated total | Amount | Percent of estimated | Percent of estimated | |
| | (thousands) | (thousands) | | (thousands) | | (thousands) | total | net error | |
| 1964 | | | | | | | | | |
| Farmsnumber Land in farmsacres Cropland harvestedacres. | 3,559 1,181,706 305,333 | 3,158 1,110,187 286,892 | 88.7 93.9 94.0 | 401 71,519 18,442 | 11.3 6.1 6.0 | 32 14,570 1,964 | 0.9 1.2 0.6 | 8.0 20.4 10.6 | |
| 1959 | | | | ĺ | | | | | |
| Farmsnumber Land in farmsacres Cropland harvestedacres. | 4,045 1,191,706 325,110 | 3,704 1,120,158 311,285 | 91.6 94.0 95.7 | 341 71,548 13,824 | 8.4 6.0 4.3 | 49 10,967 2,892 | 1.2 0.9 0.9 | 14.4 15.3 20.9 | |
| 1954 | | | | | | | | | |
| Farmsnumber Land in farmsacres Cropland harvestedacres. | 5,201 1,223,891 346,580 | 4,782 1,158,192 332,870 | 91.9 94.6 96.0 | 419 65,699 13,710 | 8.1 5.4 4.0 | 49 22,798 3,907 | 0.9 1.9 1.1 | 11.7 34.7 28.5 | |

(Data may not add to totals due to rounding)

Table 2. Estimates of Net Error for Number of Farms by Size of Farm, for the United States: 1959 and 1964

(Data may not add to totals due to rounding)

| | | Reported in census | | Estimated net error | | | | | |
|--|--|--|--|-----------------------------------|--|----------------------------------|---|--|--|
| Our second size of form | Estimated | | Derest | Amount | Porcent of | Sampling error of estimate | | | |
| Census year and size of farm | totai | Amount | estimated total | | estimated total | Amount | Percent of estimated | Percent of estimated | |
| | (thousands) | (thousands) | | (thousands) | | (thousands) | total | net error | |
| 1964 | | | | | | | | | |
| All farmsnumber | 3,559 | 3,158 | 88.7 | 401 | 11.3 | 32 | 0.9 | 8.0 | |
| Under 10 acres 10 to 49 acres 50 to 99 acres 100 to 219 acres 220 acres and over | 241 768 616 890 1,044 | 183 637 542 824 971 | 75.9 83.1 88.0 92.6 93.1 | 58 130 74 66 72 | 24.1 16.9 12.0 7.4 6.9 | 16 26 16 21 13 | 6.6 3.4 2.6 2.3 1.2 | 27.6 20.0 21.6 31.8 18.1 | |
| 1959 | | | | | | | | | |
| All farmsnumber. Under 10 acres 10 to 49 acres 50 to 99 acres 100 to 219 acres 220 acres and over | 4,045 298 890 745 1,038 1,074 | 3,704 241 811 658 998 997 | 91.6 80.7 91.2 88.3 96.1 92.8 | 341 58 79 87 40 78 | 8.4 19.3 8.8 11.7 3.9 7.2 | 49 33 34 21 26 13 | 1.2 11.1 3.8 2.8 2.5 1.2 | 14.4 56.9 43.0 24.1 65.0 16.7 | |

- ,

Table 3. Estimates of Net Error for Number of Farms by Economic Class of Farm, for the United States: 1959 and 1964

| | Reported in census | | | Estimated net error | | | | | | |
|--|--------------------|-----------------------|----------------------------------|-----------------------|----------------------------------|----------------------------|----------------------------------|--------------------------------------|--|--|
| | Estimated | | | | | Sampling error of estimate | | | | |
| Census year and economic class of farm | total | Amount (thousands) | Percent of estimated total | Amount (thousands) | Percent of estimated total | Amount (thousands) | Percent of estimated total | Percent of estimated net error | | |
| 1964 | | | | | | | | | | |
| All farms | 3,559 | 3,158 | 88.7 | 401 | 11.3 | 32 | 0.9 | 8.0 | | |
| Classes I, II and III (sales of \$10,000 or more) ¹ | 900 | · 871 | 96.9 | 28 | 3.1 | 9 | 1.0 | 32.1 | | |
| \$9,999) | 1,002 | 949 | 94.6 | 54 | 5.4 | 10 | 1.0 | 18.5 | | |
| \$2,499) | 1,657 | 1,338 | 80.7 | 319 | 19.3 | 30 | 1.8 | 9.4 | | |
| 1959 | | | | | | | | | | |
| All farms | 4,043 | ² 3,701 | 91.6 | 341 | 8.4 | 49 | 1.2 | 14.4 | | |
| Classes I, II and III (sales of \$10,000 or more) ¹ Classes IV and V (sales of \$2,500 to | 817 | ² 794 | 97.2 | 23 | 2.8 | 8 | 1.0 | 34.8 | | |
| \$9,999). | 1,328 | ² 1,270 | 95.6 | 58 | 4.4 | 13 | 1.0 | 22.4 | | |
| \$2,499) | 1,897 | ² 1,637 | 86.3 | 260 | 13.7 | 47 | 2.5 | 18.1 | | |

(Data may not add to totals due to rounding)

¹Abnormal farms included with classes I, II and III. ²Data for 1959 based on census 20-percent sample.

Table 4. Estimates of Net Error for Number of Farms by Acres of Cropland Harvested, for the United States: 1959 and 1964

(Data may not add to totals due to rounding)

| | | Reported i | n census | Estimated net error | | | | | |
|--|--|--|--|-----------------------------------|---|---|--|--|--|
| | Estimated | | | | Percent of estimated total | Sampling error of estimate | | | |
| Census year and cropland harvested | total (thousands) | Amount (thousands) | Percent of estimated total | Amount (thousands) | | Amount (thousands) | Percent of estimated total | Percent of estimated net error | |
| 1964 | | | | (| | (((((((((((((((((((((((((((((((((((((((| | | |
| All farms | 3,559 | 3,158 | 88.7 | 401 | 11.3 | 32 | 0.9 | 8.0 | |
| No cropland harvested 1 to 9 acres 10 to 19 acres 20 to 49 acres 50 to 99 acres 100 acres or more | 576 558 427 582 498 918 | 456 489 343 543 463 864 | 79.2 87.6 80.3 93.3 93.0 94.1 | 120 69 84 39 35 54 | 20.8 12.4 19.7 6.7 7.0 5.9 | 29 23 21 19 18 10 | 5.0 4.1 4.9 3.3 3.6 1.1 | 24.2 33.3 25.0 48.7 51.4 18.5 | |
| 1959 | | | | | | | | | |
| All farms | 4,045 | 3,704 | 91.6 | 341 | 8.4 | 49 | 1.2 | 14.4 | |
| No cropland harvested 1 to 9 acres 10 to 19 acres 20 to 49 acres | 580 650 447 775 | 507 547 435 689 | 87.5 84.1 97.3 88.9 | 73 104 12 86 | 12.5 15.9 2.7 11.1 | (NA) (NA) (NA) (NA) | (NA) (NA) (NA) (NA) | (NA) (NA) (NA) (NA) | |
| 50 to 99 acres 100 acres or more | 606 987 | 564 962 | 93.0 97.5 | 42 25 | 7.0 2.5 | (NA) (NA) | (NA) (NA) | (NA) | |

NA Not available.

Table 5. Estimates of Net Error for Number of Farms by Tenure, for the United States: 1959 and 1964

| | | Reported | in census | Estimated net error | | | | | |
|--|---------------------|--|----------------------|-----------------------|--------------------------|----------------------------|----------------------------------|--------------------------------------|--|
| 0 constitution of the second sec | Estimated | | Percent | | Percent | Sampling error of estimate | | | |
| Census year and tenure | total (thousands) | Amount of estimate (thousands) total | | Amount (thousands) | of estimated total | Amount (thousands) | Percent of estimated total | Percent of estimated net error | |
| 1964 | | | | | | | | | |
| All farms | 3 , 559 | 3,158 | 88.7 | 401 | 11,3 | 32 | 0.9 | 8.0 | |
| Full owner Part owner or manager Tenant | 2,019 957 582 | 1,818 800 540 | 90.0 83.6 92.8 | 201 157 42 | 10.0 16.4 7.2 | 27 20 23 | 1.3 2.1 4.0 | 13.4 12.7 54.8 | |
| 1959 | | | | | | | | | |
| All farms | 4,045 | 3,704 | 91.6 | 341 | 8.4 | 49 | 1.2 | 14.4 | |
| Full owner Part owner or manager Tenant | 2,251 931 863 | 2,116 830 758 | 94.0 89.2 87.8 | 135 101 105 | 6.0 10.8 12.2 | 58 25 22 | 2.6 2.7 2.5 | 43.0 24.8 21.0 | |

(Data may not add to totals due to rounding)

Table 6. Estimates of Net Error for Number of Commercial Farms by Type of Farm, for the United States: 1959 and 1964

| | | Reported in census | | Estimated net error | | | | | |
|--|-------------------------|---|------------------------------|----------------------|----------------------------|----------------------------|--------------------------|------------------------------|--|
| | Estimated | | Percent | | Percent | Sampling error of estimate | | | |
| Census year and type of farm | lulai | Amount | of estimated | Amount | of estimated | Amount | Percent of | Percent of | |
| | (thousands) | (thousands) | total | (thousands) | total | (thousands) | total | net error | |
| 1964 | | | | | | | | | |
| All commercial farms | 2,310 | 2,166 | 93.8 | 144 | 6.2 | 18 | 0,8 | 12.5 | |
| Cash grain farms Other field crop farms Vegetable, fruit and nut farms | 419 419 95 | 404 371 80 | 96.4 88.5 84.2 | 15 48 15 | 3.6 11.5 15.8 | 6 10 7 | 1.4 2.4 7.4 | 40.0 20.8 46.7 | |
| Dairy farms Other livestock farms except dairy and | 372 | 367 | 98.7 | 5 | 1.3 | 4 | 1.1 | 80.0 | |
| poultry. General farms. | 615 213 | 202 | 94.5 94.8 | | 5.2 | 5 | 2.3 | 45.5 | |
| farms | 177 | 161 | 91.0 | 16 | 9.0 | 5 | 2.8 | 31.2 | |
| 1959 | | | | | | | | | |
| All commercial farms | 2,573 | ¹ 2,413 | 93.8 | 161 | 6.2 | 25 | 1.0 | 15.5 | |
| Cash grain farms Other field crop farms Vegetable, fruit and nut farms | 451 519 94 439 | ¹ 398 ¹ 469 ¹ 82 1428 | 88.3 90.4 87.1 97.6 | 53 50 12 10 | 11.7 9.6 12.9 2.4 | 11 18 7 7 | 2.4 3.5 7.4 1.6 | 20.8 36.0 58.3 70.0 | |
| Other livestock farms except dairy and poultry | 697 224 | ¹ 684 ¹ 212 | 98.0 94.6 | 10 14 12 | 2.0 5.4 | 8 5 | 1.1 2.2 | 57.1 41.7 | |
| Poultry and miscellaneous commercial farms | 149 | ¹ 140 | 93.7 | 9 | 6.3 | 3 | 2.0 | 33.3 | |

(Data may not add to totals due to rounding)

¹1959 data are based on the census 20-percent sample.

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B. Components of Net Error

Estimates of the components of net error are presented in tables 7 to 12. Table 7 shows these components by detailed "coverage status" classification for number of farms, land in farms, and average size of farm. By definition, there was one correctly enumerated census farm corresponding to each correctly counted coverage check farm. Consequently, for correctly counted farms, the census and coverage check estimates for number of farms are the same, while those for land in farms and average size of farm differ because of reporting error for these items.

In table 7, correctly counted farms controlling one census farm and those controlling two or more census farms are shown separately. Those controlling one census farm are further broken down according to whether or not there was agreement¹ on total land reported. Of the 3,026,000 coverage check farms controlling one census farm, 2,688,000 (88.8 percent) agreed on total acres. The corresponding figure for the 1959 coverage check was 89.1 percent.

Using the coverage check as a standard, an estimated 79,000 places were erroneously counted in the census. Of these 79,000 about 23,000 were not farms and the remaining 56,000 were parts of other farms. Of the 23,000 places which were not farms, 16,000 were places which did not have sufficient activity according to the coverage check to quality as a farm.

The coverage check procedure identified an estimated 456,000 farms which were missed in the census and an additional 23,000 which were underenumerated. Of the former group, 15,000 were enumerated in the census but rejected as farms in the census edit. For another 120,000, the operators were listed in the census but were reported as not having any activities requiring a farm questionnaire.

Tables 8 to 11 present estimates of the components of net error for number of farms by size, economic class, and acres of cropland harvested; and for total land, cropland harvested, and value of farm products sold.

The following results are among those considered most important:

1. Except for farms of 220 acres and over, the missed farm component accounts for most of the estimated total net error for farm counts. The missed farm component as a percent of the estimated total decreases as the size of farm increases (table 8).

2. For correctly counted farms, there was a tendency in the census to underreport the land in the farm as shown by the excess of census farms

¹Tolerances used to determine agreement on total land were as follows:

| Acres in coverage | Census and coverage check "agree" |
|-------------------|------------------------------------|
| check | if difference does not exceed |
| Less than 10 | 5 acres |
| 10 to 99 | 50 percent of coverage check acres |
| 100 and over | 50 acres |

over coverage check farms in the first four size classes and the resulting excess of coverage check farms in the size class 220 acres and over (table 8). The overall net effect of this tendency may be seen in table 9, which shows a positive net error (census figure too low) of 2.8 percent for total land in correctly counted farms.

3. The positive net error for correctly counted farms of 3.5 percent for cropland harvested compared with only 2.8 percent for total land (table 9) is surprising because earlier coverage checks have shown cropland harvested to be more accurately and fully reported than total land. The corresponding estimates of net difference for correctly counted farms from the 1959 coverage check were 2.1 percent for total land in farms and 0.3 percent for cropland harvested. In the 1964 coverage check, data were obtained on a tract-by-tract basis. By contrast, a more intensive field-by-field procedure was used in 1959. It is possible that this shift in procedure resulted in an over statement in 1964 of total net error for cropland harvested. (See also comments in section VIII, p. .)

4. No attempt was made in the coverage check to measure reporting error for the individual data items used to calculate total value of farm products sold for correctly counted farms. However, data on sales were obtained from farms classified as overenumerated, underenumerated, and missed; and it is estimated that there was a relative net error of 2.9 percent for total value of farm products sold (table 9).

Census type questionnaires were completed in phase II of the coverage check for farms missed in the census. Estimates of the missed farm component of net error for crop, poultry, and livestock items are therefore available and are given in table 12, together with the census counts for corresponding items. While these estimates probably understate total net error, the missed farm components for these items are likely to contribute substantially more than other components to total net error. Therefore, it seems reasonable to indicate estimated minimum levels by adding the missed farm component to corresponding census figures.

For field crops other than tobacco and cotton, estimates based on the census total plus missed farm component are closer to corresponding U.S. Department of Agriculture (USDA) estimates than are census figures alone. With the further exception of corn, these sums are somewhat below USDA estimates.

The particularly close agreement of census and USDA figures for cotton and tobacco probably results from the special attention that was given these crops during the early stages of census processing. Records of acreage allotments for tobacco and ginning activity for cotton provided fairly accurate check data by county. Comparable county totals were obtained by clerks from the census questionnaires, and for some counties with large differences, lists of known producers were reviewed for possible omissions from the census. In addition, special efforts were made to eliminate cardpunching errors that would have reduced the tabulated acres for these crops.

For livestock items the coverage check and USDA estimates are not directly comparable because of timing differences. The census inquiry related to inventories as of the date of enumeration which, for most farms, was sometime in November or December of 1964, the average date being December 2. USDA figures, on the other hand, are for estimated numbers on hand January 1, 1965. Differences between census and USDA figures may therefore reflect seasonal fluctuations in inventories arising from purchases, births, deaths, and movements of flocks and herds to other ranges, feedlots, and markets.

With one exception, the estimates for missed farms shown in table 12 varied from 1.6 to 16.7 percent of the census-total-plus-missed-farm component. The exception is chicken eggs sold, for which the missed farm component was only 0.5 percent of the combined total. Since production of eggs is concentrated on a fairly small number of farms with high value of sales, it might be reasonable to conclude that few, if any, of these farms were missed in the census. If this were true and the USDA figure were accepted as more accurate, then the difference would have to be attributed largely to reporting error for enumerated farms. On the other hand, if a few of the large producers were in fact missed, the estimated missed farm component would be subject to a relatively large sampling error; and an estimate similar to the one actually obtained would still be possible.

| | Table 7. | Number | of Farms, | Land in Farms | , and Average | Size of | Farm, b | y Coverage Stat |
|--|----------|--------|-----------|---------------|---------------|---------|---------|-----------------|
|--|----------|--------|-----------|---------------|---------------|---------|---------|-----------------|

| | Number (thous | of farms sands) | Land in (thousands) | n farms of acres) | Average size of farm (acres) | |
|---|--------------------------------------|---|--|--|---|--|
| Coverage status | According to census procedure | According to coverage check procedure | According to census procedure | According to coverage check procedure | According to census procedure | According to coverage check procedure |
| Total | 3,158 | 3,559 | <u>1,110,186</u> | 1,181,706 | 351.5 | 332.0 |
| Correctly counted ¹ Coverage check farm controlling one census farm Total acres agree ² Total acres do not agree Coverage check farm controlling more than one census farm ³ | 3,079 3,026 2,688 338 53 | 3,079 3,026 2,688 338 53 | 1,096,741 1,068,901 776,210 292,691 27,840 | 1,130,189 1,091,767 772,084 319,683 38,421 | 356.2 353.2 288.8 865.9 525.3 | 367.1 360.8 287.2 945.8 724.9 |
| Overnumerated (a census farm not corresponding to a coverage check farm) Place was not a farm according to coverage check Nonagricultural in coverage check Not found in coverage check Duplicate Place part of another farm according to coverage check. | 79 23 16 5 1 | | 13,445 1,416 633 89 693 12,030 | | 170.2 61.6 39.6 416.7 4520.0 214.8 | |
| Underenumerated and missed (coverage check farm not controlling any census farm). Underenumerated. Operator listed in census. Operator not listed in census. Missed. Enumerated in census but rejected as a farm. Listed in census but not enumerated. Completely missed in census. | | 480 23 16 7 456 15 120 321 | | 51,517 2,801 1,540 1,261 48,716 924 12,260 35,532 | | 107.3 121.8 96.3 180.1 106.8 61.6 102.2 110.7 |
| Net error (total "according to coverage check procedure" minus total "according to census procedure") | - | 401 | _ | 71,520 | - | _ |

¹Estimates for correctly counted farms are based on weighted subsample (phase II) results adjusted to census levels. ²Total acresare considered in agreement if the census and coverage check figures do not differ by more than predetermined tolerance limits.

³When a coverage check farm controls two or more census farms, one of these is designated as the corresponding census farm. The total and average acres shown in columns designated "according to census procedure" are for corresponding census farms only.

⁴Figures are based on unrounded estimates for number of farms and land in farms.

COVERAGE CHECK RESULTS

Table 8. Components of Net Error for Number of Farms by Size of Farm

(Data may not add to totals due to rounding)

| | Number of farms (thousands) | | | | | | Percent of estimated total | | | | | |
|--|-----------------------------|-------------------------|--------------------------|------------------------|------------------------|--------------------------|----------------------------|-----------------------|-----------------------|-----------------------|------------------------|--------------------------|
| Component | Total | Under 10 acres | 10 to 49 acres | 50 to 99 acres | 100 to 219 acres | 220 acres and over | Total | Under 10 acres | 10 to 49 acres | 50 to 99 acres | 100 to 219 acres | 220 acres and over |
| Reported in census | 3,158 | 183 | 637 | 542 | 824 | 971 | 89 | 76 | 83 | 88 | 93 | 93 |
| Plus net difference for correctly counted farms ¹ Minus overenumerated farms Plus underenumerated farms Plus missed farms | 0 79 +23 +456 | -12 -10 +5 +76 | -21 -27 +8 +170 | -5 -14 +4 +89 | -2 -14 +4 +78 | +40 -13 +2 +44 | 0 -2 +1 -13 | -5 -4 +2 +32 | -3 -4 +1 +22 | -1 -2 +1 +14 | (Z) -2 (Z) +9 | +4 -1 (Z) +4 |
| Estimated total | 3,559 | 241 | 768 | 616 | 890 | 1,044 | 100 | 100 | 100 | 100 | 1.00 | 100 |

Z Less than 0.5 percent. $^1\mathrm{Minus}$ if number in census is greater than number in coverage check.

Table 9. Components of Net Error for Total Land, Cropland Harvested, and Value of Farm Products Sold

| | (Data | may not add to tota | s due to rounding) | | | | |
|--|---|------------------------------|--|------------------------------|------------------------------------|-----------------------------|--|
| | Land in | farms | Cropland h | arvested | Value of farm products sold | | |
| Components | Acres. (thousands) | Percent of estimated total | Acres (thousands) | Percent of estimated total | Amount (millions of dollars) | Percent of estimated total | |
| Reported in census | 1,110,187 | 93.9 | 286,892 | 94.0 | ¹ 35,294 | 97.1 | |
| Plus net difference for correctly counted farms ² Minus overenumerated farms Plus underenumerated farms Plus amount on missed farms | +33,447 -13,445 +2,801 +48,716 | +2.8 -1.1 +0.2 +4.1 | +10,715 -4,697 +1,099 +11,324 | +3.5 -1.5 +0.4 +3.7 | (NA) -470 +121 +1,396 | (NA) 1.3 +0.3 +3.8 | |
| Estimated total | 1,181,706 | 100.0 | 305,333 | 100.0 | ³ 36,342 | 100.0 | |

NA Not available. ¹This (revised) figure differs slightly from one used in an earlier publication (table 3 of volume III, part 6). ²Plus signs indicate coverage check estimates exceed census figures.

³Since the coverage check did not measure reporting error for value of farm products sold, the estimated total for this characteristic reflects only errors involving overenumerated, underenumerated, and missed farms. Also see footnote 1.

Table 10. Components of Net Error for Number of Farms by Economic Class of Farm

| | Num | ber of farms (thousa | nds) | Percent of estimated total | | | | | |
|---|--|--|--|---|--|--|--|--|--|
| Component | Classes I, II, and III (Sales of (\$10,000 and over) ¹ | Classes IV and V (sales of \$2,500 to \$9,999) | Class VI and other (sales of \$50 to \$2,499) | Classes I, II, and III (sales of \$10,000 and over) ¹ | Classes IV and V (sales of \$2,500 to \$9,999) | Class VI and other (sales of \$50 to \$2,499) | | | |
| Reported in census | 871 | 949 | 1,338 | 97 | 95 | 81 | | | |
| Minus overenumerated farms Plus underenumerated farms Plus missed farms | -12 +4 +37 | -19 +3 +69 | -48 +16 +351 | -1 (Z) +4 | -2 (Z) +7 | -3 +1 +21 | | | |
| Estimated total ² | 900 | 1,002 | 1,657 | 1,00 | 100 | · 100 | | | |

(Data may not add to totals due to rounding)

Z Less than 0.5 percent. ¹Abnormal farms included with classes I, II, and III. ²Since the coverage check did not measure reporting error for correctly counted farms, the estimated total reflects only errors involving overenumerated, underenumerated, and missed farms.

Table 11. Components of Net Error for Number of Farms by Acres of Cropland Harvested: 1964

| | | (Data r | nay not ad | d to total | s due to r | ounding) | | | | | | |
|--|-----------------------------|--------------------------|-------------------------|-------------------------|----------------------|-----------------------------|-----------------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------------|
| | Number of farms (thousands) | | | | | | Percent of estimated total | | | | | |
| Components | No cropland harvested | 1 to 9 acres | 10 to 19 acres | 20 to 49 acres | 50 to 99 acres | 100 acres and over | No cropland harvested | 1 to 9 acres | 10 to 19 acres | 20 to 49 acres | 50 to 99 acres | 100 acres and over |
| Reported in census | 456 | 489 | 343 | 543 | 463 | 864 | 79 | 88 | 80 | 93 | 93 | 94 |
| Plus net difference for correctly counted farms ¹ Minus overenumerated farms Plus underenumerated farms Plus missed farms | +2 -17 +6 +129 | -57 -16 +5 +137 | +20 -10 +5 +69 | -12 -16 +3 +64 | +9 8 +2 +31 | +38 -12 +2 +28 | (Z) -3 +1 +22 | -10 -3 +1 +25 | +5 -2 +1 +16 | -2 -3 +1 +11 | +2 -2 (Z) +6 | +4 -1 (Z) +3 |
| Estimated total | 576 | 558 | 427 | 582 | 497 | 920 | 100 | 100 | 100 | 100 | 100 | 100 |

 $\rm Z$ Less than 0.5 percent. $\rm ^{1}Minus$ if number in census is greater than number in coverage check.

COVERAGE CHECK RESULTS

Table 12. Estimates of Missed Farm Component of Net Error for Selected Items

(In thousands)

| Item | Reported in census | Estimate for missed farms | Census total plus missed farm component ¹ | USDA estimate ² |
|---|------------------------|------------------------------|--|------------------------------|
| Corn harvested: Farms reporting Acres | 1,547 63,515 | 125 2,561 | l,672 66,076 | (NA) 65,388 |
| Sorghums harvested: Farms reporting Acres | 249 14,965 | 12 683 | 261 15,648 | (NA) 15,751 |
| Soybeans harvested: Farms reporting Acres | (NA) 30,351 | 27 746 | (NA) 31,097 | (NA) 31,721 |
| Wheat harvested: Farms reporting Acres | 740 47,958 | 29 1,201 | 769 49,159 | (NA) 49,762 |
| Oats harvested: Farms reporting Acres | 708 18,936 | 22 310 | 730 19 , 246 | (NA) 19,759 |
| Tobacco harvested: Farms reporting Acres | 331 1,025 | 56 117 | 387 1,142 | (NA) 1,078 |
| Cotton harvested: Farms reporting Acres | | 27 616 | 351 14,533 | (NA) 14,055 |
| Sheep and lambs on place: Farms reporting Number | 235 25 , 472 | 20 1,180 | 255 26,652 | (NA) ³ 25,127 |
| Hogs and pigs on place: Farms reporting Number | 1,018 54,080 | . 81 1,540 | 1,162 55,620 | (NA) ³ 50,792 |
| Cattle and calves on place: Farms reporting Number | 2,284 105,558 | 191 3,731 | 2,475 109,289 | (NA) ³ 109,000 |
| Chickens four months old and over: Farms reporting Number | 1,211 343,162 | 101 16,379 | 1,312 359,541 | (NA) (NA) |
| Chicken eggs sold or to be sold: Farms reporting Dozens | 527 4,282,304 | 30 23,193 | 557 4,305,497 | (NA) 5,231,333 |
| Vegetables harvested for sale: Farms reporting | 132 | 23 | 155 | (NA) |
| Fruit orchards, groves, vineyards, and planted nut trees: | 201 | | 0.75 | |
| Acres | 225 4,251 | 45 252 | 270 4,503 | (NA) (NA) |

NA Not available. ¹Does not reflect errors in reporting for correctly counted farms or amounts reported for overenumerated and under-²U.S. Department of Agriculture data are from <u>Agriculture Statistics</u>, 1967. ³Estimated number on hand on January 1, 1965.

C. Reporting Errors for Correctly Counted Farms

Tables 13 to 17 show, for various characteristics, estimates of correctly counted farms by class to which assigned in the census and in the coverage check. Elements on the main diagonal of each table are estimates of the number of correctly counted farms "identically" classified in the census and in the coverage check. The off-diagonal elements are estimates of farms classified differently, primarily as a result of errors made in reporting farm characteristics but also due to errors which occurred in recording and processing the data.

The reporting and other errors detected as a result of the coverage check may be broken down into components of response variance and bias. The response variance component represents the effect of errors which tend to cancel out where a large number of observations are made. Bias represents the effect of systematic errors which may occur, for example, as a result of the wording or format of a particular item on the census questionnaire.

The results presented in tables 13 to 17 may be used to compute measures or indexes of response variance and bias. These indexes are presented in table 18. The bias and variance measures are discussed in the following paragraphs.

1. <u>Measures of bias</u>. In estimating bias, the coverage check results are viewed as the standard against which the census results are compared. Their differences, then, are considered to be estimates of bias (net error) in the census. The census results are taken as an estimate of the average results which would have been obtained had it been possible to do independent repetitions of the census under the same general conditions. In like manner, the coverage check results are used to estimate the average results which would have been obtained if it were possible to do independent repetitions of the census of the average results which would have been obtained to be estimate the average results which would have been obtained if it were possible to do independent repetitions of the coverage check.

One purpose of tables 13 to 17 is to help clarify the nature of the net difference estimates presented in tables 8, 9, and 11. For example, table 8 shows an estimated net difference of -21,000 for number of farms in size class 10 to 49 acres. It may be seen from table 13 that this figure is equal to the difference between the coverage check total for farms in size class 10 to 49 acres (525,000) and the corresponding census total (546,000).

The bias or net difference relative to the estimated total number of correctly counted farms for which a response was obtained (or imputed) in both the census and the coverage check is called the net difference rate. This measure provides an estimate of the amount of bias in the census statistics. A positive value indicates a net deficiency in the census count; and a negative value that the classification was assigned to an excessive number of census farms. The algebraic sum of the net difference rates for a particular characteristic is zero. In the example for farms in size class 10 to 49 acres, the estimated bias is -0.71 percent (-21,000/2,963,000).

Another measure of bias is the index of net shift relative to the coverage check, which is obtained by dividing the net difference by the number in that class in the coverage check. For farms in size class 10 to 49 acres, this index has a value of -4 percent (-21,000/525,000), showing

that the census estimate for this category was 4 percent greater than the coverage check estimate.

Net difference rates and indexes of net shift relative to the coverage check are given in columns (1) and (2) of table 18. These indexes show that there was a tendency in the census to underreport size for farms having 220 acres or more and those harvesting at least 50 acres of cropland. The indexes show substantial biases leading to undercounts of part owners and managers and of nonresident operators in the census, with corresponding overcounts in the other tenure and residence categories. Except for places starting operation before 1945, there may have been some tendency to update the year began operation as shown by the deficiency of census farms in classes prior to 1960-1964 and the resulting excess of farms in this latter class.

2. Indexes of response variance. One approach to the measurement of response variance involves the replication of some defined phase of the data collection or processing procedures and the subsequent comparison of results obtained for identical units. This method is useful for estimating the basic trial-to-trial variability in response, called simple response variance. Although the coverage check used an "improved" procedure, it provided data from a second source for identical farms, making it possible to compute estimates of simple response variance. Since the coverage check did not replicate the census procedure, however, resulting estimates of response variance are likely to be underestimates.

The results presented in tables 13 to 17 were used to compute indexes of response variability. The diagram below illustrates the approach for a particular size class.²

| | C | overage chec | k |
|-------------------------------------|------------------------------------|--|-----------|
| Census | In size class 10 to 49 acres | Not in size class 10 to 49 acres | Total |
| In size class 10 to 49 acres | a | Ъ | a+b |
| Not in size class 10 to 49 acres | с | đ | c+d |
| Total | a+c | b+d | n≖a+b+c+đ |

The sum (b + c) relative to the estimated number of farms n in both the census and the coverage check, (b + c)/n, is called the gross difference rate, identified as g. The quantity g/2 is considered an estimate of the simple response variance. In order to make the estimates of response variability comparable from item to item, they are converted to an *index of inconsistency* identified as I. This is done by dividing the simple response variance, g/2, by the maximum value that it can assume, pq. The proportion of the population having the characteristic under consideration is p, and q = 1 - p.

²For a more detailed description see U.S. Bureau of the Census, *Evaluation and Research Programs of the U.S. Censuses of Population and Housing, 1960: Accuracy of Data on Population, Characteristics as Measured by Reinterviews*, Series ER60, No. 4. Washington, D.C., 1964.

For the first three characteristics presented in table 18, the average index of inconsistency is about 20 percent, and for the last two characteristics it is about 43 percent. These results imply that there is less error in reporting characteristics such as size of farm, acres of cropland harvested, and tenure than there is in reporting of characteristics such as residence or year began operation.

By way of comparison with results from the 1960 population census,³ the average index of inconsistency for various age classes was about 5 percent and for number of children ever born, about 12 percent. Higher indexes were obtained for educational attainment classes and personal income classes, being 35 and 41 percent, respectively. The average index for residence in 1955 was 58 percent.

A final index of response variability presented in table 18 is the proportion of coverage check farms in a class which were identically reported in the census. With reference to the above diagram, this measure is simply the number of farms identically classified, divided by the number in the class in the coverage check, or a/(a+c). When the proportion of farms in a particular coverage check

³Ibid., table 24.

class is small, this index can be used in the same way as the index of inconsistency.

Up to this point we have considered the effect of reporting errors on frequency distributions of correctly counted farms classified by various characteristics. Table 19 shows the effect of reporting errors on estimates of total acres in place and, for those cases where large differences occurred, indicates some reasons for the differences. The major question explored in this analysis is the extent to which large differences resulted from erroneous omission or inclusion of entire tracts, as compared with incorrect reporting of acres for correctly included tracts.

An estimated 56 percent of the cases with large differences in either direction involved erroneous inclusion or omission of entire tracts. Changes in control of the tract during the census year were apparently not a major factor in the erroneous omission of tracts. Of the 160,000 farms with large differences due to the omission of entire tracts only 24,000 involved a change in operator during 1964--for some or all of the omitted tracts. In about one-third of the remaining cases (46,000 out of 136,000) none of the omitted tracts was used for crops in 1964.

| Table 13. | Correctly | Counted | Farms | by 🛛 | Size | in | Census | and | in | Coverage | Chec | k |
|-----------|-----------|---------|-------|------|------|----|--------|-----|----|----------|------|---|
|-----------|-----------|---------|-------|------|------|----|--------|-----|----|----------|------|---|

| | | | Coverage check size classification | | | | | | | | | | |
|--|--|----------------------|------------------------------------|---------------------------|----------------------------|---------------------------------|-------------------------------|-------------------------|----------------------------------|--------------------------------|-------------------------------|----------------------------|----------------------------|
| Census size classification | Number of farms | Under 10 acres | 10 to 49 acres | 50 to 69 acres | 70 to 99 acres | 100 to 139 acres | 140 to 179 acres | 180 to 219 acres | 220 to 259 acres | 260 to 499 acres | 500 to 999 acres | 1,000 to 1,999 acres | 2,000 acres and over |
| Number of farms | 2,973 | 149 | 525 | 195 | 285 | 336 | 332 | 206 | 171 | 441 | 193 | 89 | 51 |
| Under 10 acres. 10 to 49 acres. 50 to 69 acres. 70 to 99 acres. 100 to 139 acres. 140 to 179 acres. | 161 546 191 295 329 330 | 132 15 - 1 | 24 480 13 6 - 1 | 2 23 149 15 6 | 19 12 240 14 - | 3 4 11 20 273 21 | 1 2 1 7 23 275 | - 1 3 5 17 | - 2 - 2 7 | 1 2 4 5 9 | - - - - | - - - - | - - - - |
| 180 to 219 acres 220 to 259 acres 260 to 499 acres 500 to 999 acres 1,000 to 1,999 acres 2,000 acres and over | 217 160 429 186 83 46 | | 1 - - - - | | | 3 - - - - | 17 3 4 - - | 169 7 5 - - | 10 <u>131</u> 18 - - | 14 18 378 8 2 - | 3 - 22 165 2 - | - 2 12 74 | - - 5 44 |

(Thousands of farms. Data may not add to totals due to rounding)

| | Number | Coverage check classification for acres harvested | | | | | | | | | | |
|--|--|---|--------------------------------|---------------------------------|---|--|---------------------------|--|--|--|--|--|
| for acres harvested | of farms | No acres harvested | 1 to 9 acres | 10 to 19 acres | 20 to 49 acres | I to 49 acres 50 to 99 acres 100 a or m 546 487 13 5 15 1 41 5 447 58 | 100 acres or more | | | | | |
| Number of farms | 2,973 | 386 | 404 | 326 | 546 | 487 | 825 | | | | | |
| No acres harvested 1 to 9 acres 10 to 19 acres 20 to 49 acres 50 to 99 acres 100 acres or more | 384 461 306 558 478 787 | 311 50 11 11 3 1 | 36 333 27 5 3 - | 17 59 222 26 1 - | 13 15 41 <u>447</u> 29 1 | 5 1 58 388 30 | 4 2 10 54 755 | | | | | |

Table 14. Correctly Counted Farms by Acres of Cropland Harvested in Census and in Coverage Check

(Thousands of farms. Data may not add to totals due to rounding)

Table 15. Correctly Counted Farms by Tenure in Census and in Coverage Check

| <u></u> | Number of | Coverage ch | Coverage check tenure classification | | | | | | |
|------------------------------|-----------|-------------|--------------------------------------|--------|--|--|--|--|--|
| Census tenure classification | farms | Full owner | Part owner or manager | Tenant | | | | | |
| Number of farms | 2,973 | 1,597 | 896 | 480 | | | | | |
| Full owner | 1,679 | 1,493 | 140 | 47 | | | | | |
| Part owner or manager | 790 | 77 | 686 | 27 | | | | | |
| Tenant | 504 | 28 | 70 | 406 | | | | | |

(Thousands of farms. Data may not add to totals due to rounding)

Table 16. Correctly Counted Farms by Residence in Census and in Coverage Check

| | Number of | Coverage check residence classification | | | | | |
|------------------------|-----------|---|--------------|--|--|--|--|
| | farms | On place | Not on place | | | | |
| Number of farms | 2,973 | 2,680 | 293 | | | | |
| Residence not reported | 91 | 79 | 12 | | | | |
| Residence reported | 2,882 | 2,601 | 281 | | | | |
| On place | 2,634 | 2,502 | 132 | | | | |
| Not on place | . 248 | 99 | <u>150</u> | | | | |

(Thousands of farms. Data may not add to totals due to rounding)

Table 17. Correctly Counted Farms by Year Began Operation in Census and in Coverage Check

| (Thousands of farms. | Data may not add | l to totals | due | to round | ing) |
|----------------------|------------------|-------------|-----|----------|------|
|----------------------|------------------|-------------|-----|----------|------|

| - | | Coverage check classification | | | | | | | | | |
|--|-----------------------------------|-------------------------------|-----------------------------------|-------------------------------|------------------------------|-------------------------------------|------------------------------|-----------------------------|--|--|--|
| Census classification for year began operation | Number | Year began | | Year began operation reported | | | | | | | |
| Gensus classification for year began operation | farms | not reported | Total | 1960 to 1964 | 1955 to 1959 | 1950 to 1954 | 1945 to 1949 | 1944 or earlier | | | |
| Number of farms | 2,973 | 16 | 2,957 | 570 | 502 | 438 | 478 | 969 | | | |
| Year began operation not reported | 152 | 1 | 151 | 32 | 27 | 22 | 22 | 48 | | | |
| Year began operation reported 1960 to 1964 1955 to 1959 1950 to 1954 1945 to 1949. | 2,821 571 467 409 442 | 15 1 3 1 2 | 2,806 570 464 408 440 | 538 416 52 22 24 | 475 61 292 58 24 | 416 33 56 <u>236</u> 40 | 455 26 22 46 280 | 922 34 41 47 72 | | | |
| 1944 or earlier | 933 | 2 8 | 925 | 24 24 | 40 40 | 40 51 | 81 | 728 | | | |

Table 18. Indexes of Response Variance and Bias for Selected Items

| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$ | | (Computed from unrounded figures) | | | | | | | | | | | | | |
|--|---|-----------------------------------|--|-----------------------------|--------------------------------|--|--------------------------------------|-----------------------------|--|-----------------------------|--------------------------------|--|--|--|--|
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $ | ltem | Net differ- ence rate | Index of net shift relative to coverage check | Gross difference rate | Index of incon- sistency | Percent in coverage check class identically reported in census | ltem | Net differ- ence rate | Index of net shift relative to coverage check | Gross difference rate | Index of incon- sistency | Percent in coverage check class identically reported in census | | | |
| Size of farm1-0.42 -8.39 1.55 15.66 88.73 Tenure-2.77 -5.15 9.81 19.83 93.45 10 to 49 acres -0.69 -3.93 3.74 12.65 91.39 $Part$ owner or -2.77 -5.15 9.81 19.83 93.45 10 to 49 acres -0.15 $+2.30$ 2.96 24.35 76.35 $Part$ owner or $manager$ $+3.58$ $+11.88$ 10.52 25.94 76.60 100 to 139 acres $+0.23$ $+2.01$ 3.99 20.07 81.35 81.36 $Tenant$ -0.81 -5.05 5.78 20.93 84.61 180 to 219 acres $+0.35$ $+6.66$ 2.32 22.13 76.71 76.71 7.98 47.84 96.21 220 to 259 acres $+0.43$ $+2.87$ 3.84 15.35 85.66 85.75 $0n$ place -1.14 -1.27 7.98 47.84 96.21 1,000 to 1,999 acres $+0.22$ $+6.65$ 0.82 14.46 83.11 Not on place -1.14 $+11.72$ 7.98 47.84 53.26 1,000 to 1,999 acres $+0.22$ $+6.65$ 0.82 14.46 83.11 Not on place -1.13 -5.89 9.82 31.00 77.34 1,000 to 1,999 acres -1.402 6.65 26.78 82.54 1955 to 1959 $+0.39$ $+2.29$ 12.66 45.45 61.44 $10 to 19 acres-1.4026.6526.7882.5$ | | (1) | (2) | (3) | (4) | (5) | <u> </u> | (1) | (2) | (3) | (4) | (5) | | | |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | Size of $farm^1$ | | | | | | Tenure | | | | | | | | |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | Under 10 acres 10 to 49 acres | -0.42 | -8.39 -3.93 | 1.55 3.74 | 15.66 12.65 | 88.73 91.39 | Full owner | -2.77 | -5.15 | 9.81 | 19.83 | 93.45 | | | |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | 50 to 69 acres 70 to 99 acres | +0.15 | +2.30 | 2.96 3.37 | 24.35 | 76.35 | Part owner or manager | +3.58 | +11.88 | 10.52 | 25.94 | 76.60 | | | |
| $ \begin{array}{c} 180 \ \text{to} \ 219 \ \text{acres} \\ 220 \ \text{to} \ 259 \ \text{acres} \\ 200 \ \text{to} \ 259 \ \text{acres} \\ 1000 \ \text{to} \ 999 \ \text{acres} \\ 1000 \ \text{to} \ 1999 \ \text{acres} \\ 1000 \ \text{to} \ 1990 \ \text{to} \ 1850 \ \text{to} \ 1960 \ \text{to} \ 1964 \ \text{to} \ 1960 \ \text{to} \ 1964 \ \text{to} \ 1950 \ \text{to} \ 1959 \ \text{to} \ 1950 \ \text{to} \ 1959 \ \text{to} \ 1959 \ \text{to} \ 1950 \ \text{to} \ 1959 \ \text{to} \ 1950 \ \text{to} \ 1959 \ \text{to} \ 1950 \ \text{to} \ 19$ | 140 to 179 acres | +0.23 | +2.01 | 3.76 | 18.98 | 82.88 | Tenant | -0.81 | -5.05 | 5.78 | 20.93 | 84.61 | | | |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | 180 to 219 acres 220 to 259 acres | -0.36 +0.35 | -5.24 +6.06 | 2.88 2.32 | 21.79 22.13 | 81.86 76.71 | Residence ² | | ç | | | | | | |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | 260 to 499 acres | +0.43 | +2.87 | 3. 84 | 15.35 | 85.64 | On place | -1.14 | -1.27 | 7.98 | 47.84 | 96.21 | | | |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | 1,000 to 1,999 acres 2,000 acres and | +0.20 | +6.65 | 0.82 | 14.46 | 83.11 | Not on place | +1.14 | +11.72 | 7.98 | 47.84 | 53.26 | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | óver | +0.15 | +9.00 | 0.27 | 8.52 | 87.50 | Year began operation ³ | | | | | | | | |
| None $+0.08$ $+0.63$ 5.03 22.30 80.34 1956 1964 -11.12 -1 | Cropland harvested | | [| | | | 1960 to 1964 | ·_1 13 | -5-89 | 9 82 | 31 00 | 10 3/ | | | |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | None | +0.08 | +0.63 | 5.03 | 22.30 | 80.34 | 1955 to 1959 | | -2.00 | 10.02 | | (1.54 | | | |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | 1 to 9 acres | -1.90 | -14.02 | 6.65 | 26.78 | 82.54 | | +0.09 | +2.29 | 12.00 | 42.45 | 61.44 | | | |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | 10 to 19 acres | +0.67 | +6.12 | 0.29 | 22.20 | 82 01 | 1950 to 1954 | +0.31 | +2.06 | 12.57 | 50.18 | 56.60 | | | |
| | 50 to 99 acres | +0.30 | +1.85 | 6.35 | 23.37 | 79.68 | 1945 to 1949 | +0.54 | +3.35 | 11.95 | 44.57 | 61.49 | | | |
| 100 acres and over. $+1.27$ $+4.26$ -0.44 -0.62 -91.52 1944 or earlier -0.11 -0.33 -0.3 | 100 acres and over. | +1.27 | +4.56 | 3.44 | 8.62 | 91.52 | 1944 or earlier | -0.11 | -0.33 | 13.91 | 31.51 | 78.99 | | | |

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¹Census size class based on edited census response. ²For farms reporting in census only. ³For farms reporting in both census and coverage check only.

COVERAGE CHECK

Table 19. Correctly Counted Farms by Type of Difference and Reason for Difference Between Census and Coverage Check Figures for Acres in Place

(Data may not add to totals due to rounding. Estimates are based on weighted subsample (phase II) results adjusted to census levels)

| · · · · · · · · · · · · · · · · · · · | Number of | Land in farms (millions of acres) | | | |
|---|--|--|--|---|--|
| Type of difference and reason | farms (thousands) | According to census | According to coverage check | Net difference | |
| Total | 3,079 | 1,096.7 | 1,130.2 | 33.5 | |
| No difference in total acres | 1,565 | <u>482.3</u> | 482.3 | - | |
| "Small" difference in total acres ¹ Coverage check figure exceeds census figure Census figure exceeds coverage check figure | <u>1,144</u> 596 549 | <u>298.3</u> 142.5 155.7 | <u>296.2</u> 148.3 147.9 | -2.1 5.8 -7.8 | |
| "Large" difference in total acres ¹ Coverage check figure exceeds census figure One or more tracts omitted in census Some or all of omitted tracts changed operator in 1964 Omitted tracts did not change operator during 1964 Omitted tracts not used for crops in 1964 Omitted tracts used, at least in part, for crops in 1964 | 369 257 160 24 136 46 90 | 316.1 152.2 83.0 11.5 71.5 25.5 45.9 | 351.7 220.2 133.9 16.2 117.7 47.6 70.1 | 35.6 68.0 50.9 4.7 46.2 22.1 24.2 | |
| Acres for included tracts incorrectly reported | 97 | 69.2 | 86.3 | 17.1 | |
| Census figure exceeds coverage check figure One or more tracts erroneously included in census Acres for included tracts incorrectly reported | 113 47 67 | 163.9 47.9 116.0 | 131.5 31.9 99.6 | -32.4 -16.0 -16.4 | |

¹Differences are defined in terms of the size of the coverage check farm. A difference is defined as "large" if it exceeds:

5 acres for places having under 10 acres,

50 percent of the acreage for places having 10 to 99 acres,

and 50 acres for places having 100 acres or more.

A "small" difference is defined as one which is not large.

D. Other Results

1. Farm characteristics related to coverage and reporting error. Table 20 presents some results based on the coverage check area sample. Each farm in the area sample was classified in one of three "match status" classifications:

a. Missed in the census--No census questionnaire for a farm was found which accounted for any of the land in the area sample farm.

b. Enumerated in the census, complete match--A census questionnaire for a farm was found which accounted for essentially the same land as reported for the area sample farm, and the tenure classifications, i.e., full owner, part owner, manager, or tenant, were in agreement. Small differences between acres reported for the area sample farm and the census farm were allowed.

c. Enumerated in the census, partial match--All other cases for which some or all of the land in the area sample farm was accounted for on one or more census questionnaires for farms.

In table 20, the percentage distribution of farms by match status classification is shown for several different characteristics of farms and farm operators. These results show that several factors are associated with failure to find and enumerate farms and, once a farm is located, with failure to identify correctly the land included in the place.

Some types of farms most frequently missed were small farms (32.2 percent of the farms under 10 acres and 24.0 percent of the farms with 10 to 49 acres), farms in enumeration districts which were urban in character (25.3 percent), farms with non-resident operators (24.7 percent), and farms started in 1964 (22.6 percent). Farms operated by part owners and managers were less likely to be missed (5.9 percent) than those which were either tenant-operated (15.0 percent) or owner-operated (16.3 percent).

During the initial coverage check interview, each farm operator was asked whether a census questionnaire had been filled for his place. Of those who answered "no" to this question, an estimated 61.2 percent had actually been missed in the census.

Comparison of "complete matches" and "partial matches" shows clearly that the difficulty of determining total acres correctly increased in proportion to the number of separate tracts in the place, in proportion to the number of landlords, and in proportion to size of the place. Land changes during the census year (1964) also increased the likelihood that the census enumerator would get an incorrect figure for total acres. Farms operated by individuals were enumerated correctly more often than those operated by partnerships and other organizations, and fully owned farms were more often described correctly than partly owned or managed farms, with tenant farms occupying an intermediate position.

2. Evaluation of edit changes. In the computer edit of census schedules, information was checked

for completeness; and related items were examined to determine whether they were consistent with one another. When the information was complete and consistent, no changes were made; when it was complete but inconsistent, one or more changes were made; and when information was missing, it was either imputed, left blank, or related information was deleted, depending on the specific circumstances.

The coverage check list sample was used to estimate the effects of the census computer edit on two items--land in farms and cropland harvested. This was done by comparing the preedit and postedit census figures for those farms. The results are given in tables 21 and 22, and may be summarized as follows:

a. Net changes were not significant. Increases were about equal to decreases for both items whether viewed in terms of farms or acres.

b. The number of farms with changes and the amount of change (gross) were small for both items, being somewhat larger for cropland harvested than for total land.

It should be noted that some of the differences between preedit and postedit census figures for farms in the coverage check list sample may have been due to factors other than the computer edit. The preedit figures were transcribed from census schedules during various stages of clerical and professional review so that any changes arising from the manual review, after transcription had taken place, would be confounded with changes made in the computer edit. In addition, errors arising during the transcription and subsequent keypunch operations would also affect the differences shown in tables 21 and 22.

In a related study aimed at measuring the effect of the computer edit, 1964 census preedit and postedit data for farms in a sample of 30 counties were compared. In this study, the preedit figures were those resulting after all hand editing was completed. Also, a special check was made to insure removal of all keypunch errors so that the resulting differences would reflect only the effect of the computer edit on input identical to what appeared on the questionnaires after hand editing.

In tables 21 and 22 the results of the 30-county study are presented for comparison with those from the coverage check. The tables show that the computer edit in the 30-county study had a small effect on both land in farms and cropland harvested, but especially so for the first item. It is possible that the very low figures for land in farms reflect a considerable amount of hand editing for this item.

Table 23 presents results of a comparison of census preedit and postedit data with coverage check data for correctly counted farms. The table shows that net edit changes were quite small in relation to estimated biases.

3. Basis for determining whether an enumerated place qualified as a farm in census and coverage check. In tables 24 and 25, results are presented by "basis for qualifying as a farm in the coverage check" and by "basis for qualifying as a farm in the census," respectively. The need for the distinction arises from differences in the application of the farm definition in the census and the coverage check, and not from differences in the definition itself. Before considering the results of this section it may be useful, therefore, to summarize the definition of a farm and to indicate how this definition was applied in the census and the coverage check.

The 1964 census definition of a farm was based primarily on a combination of "acres in the place" and the estimated value of products sold. The word "place" was defined to include all land under the control or supervision of one person or partnership at the time of enumeration and on which agricultural operations were conducted at any time during 1964. Agricultural operations included the growing of crops; the raising of domestic animals and poultry, and the production of other agricultural products. Control may have been exercised through ownership or mangement or through a lease, rental, or cropping arrangement.

Places of less than 10 acres were counted as farms if the estimated sales of agricultural products for the year amounted to at least \$250. Places of 10 acres or more were counted as farms if the estimated sales of agricultural products for the year amounted to at least \$50. Places having less than the \$250 or \$50 minimum estimated sales were also counted as farms if they could normally be expected to produce agricultural products in sufficient quantity to meet the requirements of the definition. This additional qualification resulted in including in the census count some places engaged in farming operations for the first time in 1964 and places affected by crop failure or other unusual conditions.

Computer facilities were used in applying the definition of a farm to places enumerated in the census. The computer editing specifications for this involved two distinct steps:

a. First, an estimate of the total value of farm products sold was computed for each census questionnaire. For some agricultural products, including most livestock items, subtotals were obtained by simply adding the dollar values reported for the various items. For other agricultural products, including most field crops, dairy, and poultry items, the values of sales were estimated by using state average prices multiplied by quantities reported on the census schedule.

b. When a place failed to qualify as a farm on the basis of estimated sales, the computer editing specifications provided for counting it as a farm if it contained 10 acres or more and met any one of the following criteria:

(1.) 2 acres or more of crop failure.

(2.) 5 acres or more, in total, of cropland pasture and improved other pasture.

(3.) 10 acres or more, in total, of woodland pasture and other pasture.

(4.) 5 acres or more of land in summer fallow.

(5.) 50 chickens or more 4 months old or over on the farm.

(6.) 5 sheep and lambs or more on the farm.

(7.) 5 goats and kids or more on the farm (for selected States having this question).

(8.) 5 hogs and pigs or more on the farm.

(9.) 5 cattle or calves or more on the farm.

(10.) 2 cows or more on the farm.

(11.) 0.2 acres or more of tobacco harvested.

(12.) 100 pounds or more of tobacco harvested.

(13.) 0.5 acres or more, in total, of vegetables and berries harvested for sale and land in orchards, vineyards, and planted nut trees.

(14.) 3 acres or more of hay harvested, provided there were no cattle on the farm.

(15.) 2 acres or more of corn harvested, provided there were no cattle and calves or hogs and pigs on the farm.

Places having less than 10 acres and sales under \$250 were counted as farms if they met any of the following criteria:

(1.) 5 acres or more of crop failure.

(2.) 100 chickens or more 4 months old and over on the farm.

(3.) 10 sheep and lambs or more on the farm.

(4.) 10 goats and kids or more on the farm (for selected States having this question).

(5.) 10 hogs and pigs or more on the farm.(6.) 10 cattle and calves or more on the

farm.

(7.) 4 cows or more on the farm.

(8.) 0.3 acres or more of tobacco harvested.

(9.) 500 pounds or more of tobacco harvested.

(10.) 2 acres or more, in total, of vegetables and berries harvested for sale and land in fruit orchards, vineyards and planted nut trees.

(11.) 5 acres or more of corn harvested provided that there were no cattle and calves or hogs and pigs on the farm.

Insofar as possible, an attempt was made to duplicate, in the coverage check, the census procedure for determining whether a place qualified Sales figures were obtained in the as a farm. coverage check for major livestock, poultry, dairy, forest, and nursery products. Coverage check places exceeding the \$250 or \$50 minimum sales levels were counted as farms on this basis. If the place did not have enough sales but had 10 acres or more of cropland harvested, it qualified as a farm. Finally, coverage check places not having enough sales or cropland harvested were counted as farms according to the individual item criteria just described, using data either from a matching census questionnaire or from a census-type questionnaire completed in phase II of the coverage check for farms missed in the census.

Table 24 shows the distribution of area sample farms by basis for qualifying as a farm in the coverage check. It shows that correctly counted and underenumerated farms were more likely to qualify on the basis of either sales or cropland harvested than were missed farms. Completely missed farms not qualifying on the basis of sales were more likely to have 10 acres or more of cropland harvested than were other missed farms not qualifying on the basis of sales.

In table 25, estimates of farms are presented by basis for qualifying as a farm in the census. For correctly counted and overenumerated farms, necessary data for applying the census definition were available from the census questionnaires. For underenumerated and missed farms this information was obtained from the census-type questionnaires which were completed in phase II of the coverage check.

As can be seen from table 25, class VII farms, sometimes referred to as "part-time" farms, accounted for over half of the farms qualifying on the basis of potential sales. About 10 percent of the overenumerated, underenumerated, and missed farms were classified on the basis of potential sales whereas the corresponding figure for correctly counted farms is about 5 percent.

4. <u>Results of phase II reconciliation</u>. Unweighted results of the phase II followup for correctly counted farms are presented in table 26. This phase of the coverage check involved field reconciliation of cases having discrepancies between census questionnaires and initial coverage check (or phase I) responses. After subsampling, cases which could not be reconciled by correspondence or telephone were returned to the field for phase II followup.

Results of the phase II followup are presented in terms of "phase I results verified," "census results verified," and "other." Strict criteria were used for classification in either of the first two categories, requiring exact agreement between phase II and the corresponding coverage check or census results for both total land and cropland harvested. The first column shows that responses from 522 of the 826 followup cases differed from those obtained in the census and phase I of the coverage check for at least one of the two characteristics land in place and cropland harvested. At first glance this result may seem to indicate considerable unreliability in reporting these acreage characteristics. It is important to note, however, that the results are based on a subpopulation of cases whose acreages may be more difficult to report; as may happen for example with farms having several tracts of land.

Table 26 shows results of the phase II followup by size of farm in phase II and by type of respondent in phase I. With reference to the farm size classification, phase II followups verified either the phase I or census results for about 50 percent of the farms having less than 220 acres but for only about 30 percent of the larger size farms. For the results presented by type of respondent, the table shows that phase I responses were verified somewhat more frequently than were census results for farms having "operator" respondent in phase I and somewhat less frequently for farms having "other" respondent in phase I.

| | | | | y not do | | | | | | | |
|--|--|--|---|--|--|---|---------------------|----------------------|------------------------|------------------------|----------------------|
| | Number | | Percent distribution by match status | | bution atus | | Number | Denset | Perce by i | nt distri natch st | bution atus |
| Characteristic | of farms (thou- sands | Percent of total | Missed in census | Com- plete match | Partial match | Characteristic | (thou- sands | of total | Missed in census | Com- plete match | Partial match |
| All area sample farms | 3,453 | 100.0 | 13.2 | 60.9 | 25.9 | Number of landlords | | | | | |
| Type of ED | | | | | | 0 | 1,909 | 55.3 | 16.4 | 68.1 | 15.5 |
| A (entirely rural) B (mostly rural) C and D (urban) | 2,287 771 395 | 66.2 22.3 11.4 | 10.6 14.7 25.3 | 63.0 59.7 51.5 | 26.4 25.6 23.2 | 1 2 3 or more | 977 320 246 | 28.3 9.3 7.1 | 10.9 6.9 5.7 | 54.2 51.6 44.5 | 34.9 41.5 49.8 |
| Residence of operator | | | | | | Number of tenants | | | | | |
| On place Not on place | 3,052 401 | 88.4 11.6 | 11.7 24.7 | 63.5 41.3 | 24.8 34.0 | 0 1 2 or more | 3,021 328 103 | 87.5 9.5 3.0 | 13.2 11.8 17.9 | 62.6 50.9 43.2 | 24.2 37.3 38.9 |
| Size of farm | | | | | | | | | | | |
| Under 10 acres 10 to 49 acres 50 to 69 acres 70 to 99 acres 100 to 139 acres 140 to 179 acres | 235 709 228 346 373 361 | 6.8 20.5 6.6 10.0 10.8 10.4 | 32.2 24.0 16.1 15.1 10.6 6.7 | 46.8 56.0 58.3 62.7 66.4 67.6 | 21.1 20.0 25.7 22.2 23.0 25.7 | Answer to coverage check question on whether a census questionnaire was obtained Yes No | 2,809 | 81.3 11.8 | 4.5 | 68.4 20.5 | 27.1 18.3 |
| 180 to 219 acres 220 to 259 acres 260 to 499 acres | 214 185 466 200 | 6.2 5.4 13.5 5.8 | 6.6 5.3 4.7 4.1 | 69.6 67.3 63.7 63.0 | 23.8 27.3 31.6 32.9 | Not answered | 204 34 | 5.9 1.0 | 35.8 22.2 | 39.0 58.3 | 25.3 19.5 |
| 1,000 acres and over | 137 | 4.0 | 2.8 | 43.6 | 53:6 | 1 | 1,840 817 374 | 53.3 23.7 10.8 | 17.8 9.1 8.8 | 66.4 58.2 55.1 | 15.7 32.7 36.1 |
| Individual Partnership and other | 3,203 250 | 92.8 7.2 | 13.4 11.1 | 62.0 47.0 | 24.6 41.9 | 4 5 or more | 190 231 | 5.5 6.7 | 4.7 5.4 | 54.8 41.2 | 40.5 53.5 |
| Tenure | | | | | | Land changes during 1964 | | | | | |
| Full owner Part owner or manager Tenant | 1,921 955 576 | 55.7 27.6 16.7 | 16.3 5.9 15.0 | 68.0 50.3 54.9 | 15.7 43.8 30.2 | Started in 1964 One or more changes No changes | 138 525 2,789 | 4.0 15.2 80.8 | 22.6 12.5 12.9 | 53.7 46.0 64.1 | 23.7 41.5 23.0 |

Table 20. Distribution of Area Sample Farms by Match Status, for Selected Characteristics

(Data may not add to totals due to rounding)

Table 21. Farms With Edit Changes in Total Land and Cropland Harvested

| Effect of edit | | Land in farms | | Cropland harvested | | | |
|-------------------------------------|-----------------------------|-------------------------|--------------------|-----------------------------|-------------------------|--------------------|--|
| | Number of coverage check | Percent of | f total in | Number of coverage check | Percent of | total in | |
| | farms (thousands) | Coverage check study | 30-county study | farms (thousands) | Coverage check study | 30-county study | |
| Total | 3,311 | 100.0 | 100.0 | 3,311 | 100.0 | 100.0 | |
| No edit change | 3,254 | 98.3 | 99.2 | 3,149 | 95.1 | 97.2 | |
| Edit change Increase Decrease | 57 32 25 | 1.7 1.0 0.7 | 0.8 0.2 0.6 | 162 97 65 | 4.9 2.9 2.0 | 2.8 2.0 0.8 | |

.

| Item | | Land in farms | | Cropland harvested | | | |
|----------------------|---------------------|-------------------------|--------------------|---------------------|-------------------------|--------------------|--|
| | Coverage | Percent of | total in | Coverage | Percent of | total in | |
| | (millions of acres) | Coverage check study | 30-county study | (millions of acres) | Coverage check study | 30-county study | |
| Pre-edit total | 1,089.4 | 100.1 | 99.98 | 306.8 | 99.6 | 99.4 | |
| Increase Decrease | 3.4 -4.8 | 0.3 -0.4 | 0.03 -0.01 | 3.2 -2.1 | 1.0 -0.7 | 0.9 -0.3 | |
| Post-edit total | 1,088.0 | 100.0 | 100.00 | 307.9 | 100.0 | 100.0 | |

Table 22. Magnitude of Edit Changes in Total Land and Cropland Harvested

Table 23. Comparison of Census Pre-edit and Post-edit Data With Coverage Check Data for Correctly Counted Farms

| | Number of | Land in farms (millions of acres) | | | | | | |
|-------------------------------|------------------|-----------------------------------|---------------|---------------|--|--|--|--|
| Item and category | farms | Cer | ISUS | Coverage | | | | |
| | (thousands) | Pre-edit | Post-edit | check | | | | |
| Land in farms | | | | | | | | |
| Total | 2,868.2 | 882.4 | 879.5 | 913.0 | | | | |
| Edit change No edit change | 31.3 2,836.9 | 21.1 861.3 | 18.2 861.3 | 15.9 897.1 | | | | |
| Cropland harvested | | | | | | | | |
| Total | 2,868.2 | 254.8 | 254.0 | 264.6 | | | | |
| Edit change No edit change | 127.2 2,741.0 | 12.1 242.7 | 11.3 242.7 | 12.1 252.5 | | | | |

(Estimates are based on weighted subsample (phase II) results)

Table 24. Distribution of Area Sample Farms by Coverage Status and Basis for Qualifying as a Farm in the Coverage Check

| (D | ata may not add to to | tals due to rounding |) | | | | |
|---------------------------------------|-----------------------|----------------------|---|-----------------------|--------------|--|--|
| | Number | Proont | Percent distribution by basis for qualifying as a farm in the coverage check | | | | |
| Coverage status | farms (thousands) | of total | Sales of live- stock, poultry and miscellaneous items | Cropland harvested | Other | | |
| All area sample farms | 3,453 | 100.0 | 74.0 | 16.3 | 9.7 | | |
| Correctly counted | 2,973 | 86.1 | 77.1 | 14.8 | 8.1 | | |
| Underenumerated | 23 | 0.7 | 71.4 | 22.9 | 5.7 | | |
| Missed Missed completely in census | 456 321 | 13.2 9.3 | 54.5 54.4 | 25.7 28.7 | 19.8 16.9 | | |
| census | 135 | 3.9 | 54.6 | 18.5 | 26.8 | | |

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| Table | 25. | Number of | Farms | and | Basis | for | Qualifying as | ; a |
|-------|--------|------------|--------|------|-------|-----|---------------|-----|
| Farm | in the | Census, by | Covera | ge S | tatus | and | Economic Cla | ISS |

| (In thou | isands) | | | | |
|--|----------------------------|--|---------------------------------|--|--|
| Coverage status and economic class ¹ | Number of | Basis for qualifying as a farm in the census | | | |
| | farms | Actual sales ² | Potential sales ³ | | |
| Correctly counted farms | 2,973 | 2,819 | 154 | | |
| Classes I to V Class VI Class VII Class VIII | 1,739 336 570 328 | 1,738 308 491 282 | 1 28 79 46 | | |
| Overenumerated farms | 79 | 72 | 7 | | |
| Classes I to V Class VI Class VII Class VIII | 31 12 20 15 | 31 10 16 14 | - 2 4 1 | | |
| Underenumerated and missed | 480 | 428 | 52 | | |
| Classes I to V Class VI Class VII. Class VII. | 113 80 192 95 | 110 75 163 80 | 3 5 29 15 | | |

¹Economic classes defined as follows:

I to V - Sales of \$2,500 or more. Also includes institutional farms with sales of \$50 or more.

VI - Sales of \$50 to \$2,499, operator under 65 years of age and not working off farm 100 days or more.

VII - Sales of \$50 to \$2,499, operator under 65 years of age

and reporting 100 days or more of work off farm. VIII - Sales of \$50 to \$2,499, operator 65 years of age and over. ²Estimated sales \geq \$50 if farm has 10 or more acres, and \geq \$250 if

farm has under 10 acres. ³Estimated sales less than amounts shown in footnote 2, place called a farm on basis of inventory and production items which indicate potential sales.

Table 26. Results of Phase II Followup for **Correctly Counted Farms**

(Unweighted data are presented)

| | Size o in ph | if farm ase II | Respondent in | | | | | | | |
|-----------|---------------------------------------|---|--|---|--|--|--|--|--|--|
| All farms | Under 220 acres | 220 acres and over | Operator | Other | | | | | | |
| 826 | 277 | 549 | 719 | 107 | | | | | | |
| 169 | 73 | 96 | 150 | 19 | | | | | | |
| 135 | 66 | 69 | 107 | 28 | | | | | | |
| 522 | 138 | 384 | 462 | 60 | | | | | | |
| | All farms 826 169 135 522 | All farms Size o in ph Under 220 acres 826 277 169 73 135 66 522 138 | Size of farm in phase II All farms Under 220 acres 220 acres and over 826 277 549 169 73 96 135 66 69 522 138 384 | Size of farm in phase II Responde phase All farms Under 220 acres 220 acres and over Operator 826 277 549 719 169 73 96 150 135 66 69 107 522 138 384 462 | | | | | | |

¹Exact agreement between phase II and phase I for total land and cropland harvested. ²Exact agreement between phase II and census for total land and

cropland harvested.

Section VIII. Special Studies in Connection With the 1964 Coverage Check

A number of special studies were conducted in connection with the 1964 coverage check. Among these were the following:

A. EPA-IRS Match

This study was conducted to test the feasibility of doing the 1969 Census of Agriculture by mail, using a mailing list developed primarily from records of Federal income tax returns. Names of operators of farms in the 1964 coverage check sample were matched against tax returns for 1963 and 1964. In order to preserve the confidentiality of census information, all of the matching was done by Census Bureau employees. For each operator, it was determined whether individual income tax returns (Form 1040) had been filed in 1963 and 1964 and whether these returns included a Schedule F, Farm Schedule. Tax returns for partnerships and corporations were also examined where appropriate.

The results of this study were instrumental in the final decision to adopt the mailout/mailback approach for the 1969 Census. The results also showed that some supplementation of the basic IRS lists would be needed for the Southern States. A further check of the unmatched cases against records of the Agricultural Stabilization and Conservation Service showed that their lists would be suitable for this purpose.

B. Comparison of Alternative Methods for Resolving Discrepancies Between Coverage Check and Census Questionnaires

Obtaining information to resolve discrepancies between coverage check and census questionnaires became especially critical in the 1964 coverage check. Use of the headquarters rule in earlier coverage checks resulted in only about three farms per segment entering the final tabulations. The weighted-segment approach used in 1964 brought in an average of about eight farms per segment. Cases requiring reconciliation increased proportionately.

There were two principal methods of acquiring phase II information to resolve cases. When the information could be obtained from answers to a few simple questions, followup was generally made by correspondence although some contacts were made by telephone. The letters sent were of a standard form, explaining the purposes of the census and coverage check but not disclosing information which had previously been reported. At the bottom of the letter, space was provided for the question(s) to be asked and for the respondents' answer(s). For example, a typical letter might contain the following questions:

How many acres are in the tract of land you rented from Mr. T. A. Jones?

acres

Were you renting this tract on December 1, 1964? Yes No_____ Because obtaining information by field followup is quite expensive, correspondence was used whenever it appeared that this method would be successful in obtaining the needed information. If, however, the problem of reconciliation were more complicated, if the letter were not returned, or if the answer proved unsatisfactory, a field followup was indicated.

With respect to the questions on land in place and cropland harvested, possible third answers, i.e., those differing from both the census and the phase I coverage check results, were handled as follows:

> 1. If the new answer were within 10 percent of the initial coverage check figure, then the initial coverage check figure was accepted.

> 2. If the new answer were within 10 percent of the census figure, the census figure was accepted.

> 3. If the new answer were not within 10 percent of either figure, then the new figure was accepted.

> 4. If circumstances of the case justified it, the technician resolving the case could exercise his own judgment as to which figure to accept.

With the increase in number of cases requiring reconciliation, it became desirable to study alternative methods of handling discrepancies. Two such approaches were investigated on an experimental basis at the Statistical Laboratory of Iowa State University, which was in charge of the phase II field work in a number of Midwest and Southern States.¹ One experiment dealt with information obtained by correspondence, and the other investigated the feasibility of reducing or even eliminating the phase II followup by having technicians resolve cases in the office which, under the existing procedures, were designated for field followup.

Experiment 1. Letter results and associated decision rules vs. field followup.

The letter experiment consisted of 96 cases containing discrepancies in total acreage, or in cropland harvested, or in both, which had been resolved by letter. That is, the replies had been considered satisfactory and thus each case was considered completed.

The cases involved in the letter experiment were sent to the field along with those selected for phase II field folowup. Attached to each letter experiment case was a summary, explaining the nature of the problem, what the respondent had previously reported, the figure that had been accepted, and the information desired. During the field interview, the "true" figure was determined as accurately as possible. Usually, it was one of the three previous figures. These final figures were accepted as the standard against which all previous results were compared.

¹These experiments have been described in appendix A, reference 1.

After the field results had been returned they were analyzed by different methods. In addition, different acceptance rules were investigated. These were substantially the same as the 10 percent acceptance rule except that other percentage figures were used. These percentage figures were 0 percent, 15 percent, and 20 percent. (The only difference between using the 0 percent acceptance rule and the letter results was that the 0 percent acceptance rule represented the technicians' judgment in certain cases where the circumstances justified it.)

The principal conclusions which have been drawn from this experiment are as follows:

1. Correspondence is a valuable technique for reconciling differences in census and initial coverage check responses.

2. It appears that the technicians must exercise their own judgment sometimes in interpreting the answers received.

3. Any acceptance rule between 5 percent and 15 percent appears to work very well, particularly for the item land in place.

4. <u>Original</u> coverage check data on cropland (for cases involving discrepancies between census and coverage check results) were inferior to census data.

Experiment 2 Technician estimates using phase I data vs. field followup.

The purpose of this experiment was to see how well technicians could estimate values for land in place and cropland harvested, using only the information available <u>prior</u> to phase II fieldwork. Thus any notes written on the phase I coverage check questionnaire explaining the nature of the operation could be used by the technicians in making estimates. The enumerator sketch maps were sometimes helpful for this purpose. Also, if the operator had been the respondent for only one of these forms, this information helped in deciding which form contained the more reliable information. Many times, however, it was necessary to "guess" at a final figure. In general, such guesses were bounded by the census and phase I coverage check figures.

The technician experiment involved 157 cases having discrepancies in total land and 215 cases having discrepancies in cropland harvested. Cases were drawn from the subsample previously selected for phase II followup. As in the letter experiment, data from the followup field interviews were available as a standard against which the technician estimates could be compared. The relatively few cases involving very large differences were removed from the sample in order to reduce the experimental error and because the cost of field followup for these few cases would not be prohibitive.²

The results of this experiment showed that the technician estimates represented modest improvement over the coverage check figures prior to phase II followup; i.e., they were, on the average, closer to the final coverage check figures. Because of the relatively small additional cost of making such estimates (if made at the time of technical review), further investigation of this method may be desirable.

²Cases having very large differences were those with a difference exceeding 1,000 acres for land in place or 500 acres for cropland harvested.

Appendix A - References

- 1. Graham, Charles Kent, Comparison of Alternative Methods of Gathering Data for the Evaluation of the 1964 Census of Agriculture. M.S. thesis, Iowa State University Library, May 1967.
- Hansen, Morris H., Hurwitz, William N., and Bershad, Max, "Measurement Errors in Censuses and Surveys," Bulletin of the International Statistical Institute, Vol. 38, Part 2, Tokyo, 1961. Also in American Statistical Association, Proceedings of the Social Statistics Section, 1959, Washington, D.C., 1960.
- 3. Hurley, R., Jabine, T., and Larson, D., "Evaluation Studies of the 1959 Census of Agriculture," American Statistical Association, *Proceedings of the Social Statistics Section*, 1962, Washington, D.C., 1963.
- 4. Jabine, T.B., "Checking the Accuracy of Area Statistics Obtained in the United States Censuses of Agriculture," Chapter 9 of *Estimation of Areas in Agricultural Statistics*, Food and Agriculture Organization of the United Nations, Rome, 1965.
- 5. U.S. Bureau of the Census, U.S. Census of Agriculture, 1950, Vol. II: "General Report," Washington, D.C., U.S. Government Printing Office. See pp. XXXIII-XXXVII for description of evaluation survey procedures and results.
- 6. U.S. Bureau of the Census, U.S. Census of Agriculture, 1954, Vol. II: "General Report," Washington, D.C., U.S. Government Printing Office. See pp. XXXII-XXXIV for description of evaluation survey procedures and results.
- 7. U.S. Bureau of the Census, U.S. Census of Agriculture, 1959, Vol. II: "General Report," Washington, D.C., U.S. Government Printing Office. See pp. XXXVI-XLIII for description of evaluation survey procedures and results.
- 8. U.S. Bureau of the Census, U.S. Census of Agriculture, 1964, Vol. II: "General Report," Washington, D.C., U.S. Government Printing Office. See pp. XXXI-XXXV for description of coverage check procedures and results.
- 9. U.S. Bureau of the Census, U.S. Census of Agriculture, 1964, Vol. III: "Special Reports," Part 6: "Procedural History," Washington, D.C., U.S. Government Printing Office.

Appendix B - Forms

| | ······································ | | research to | | | OWNERS IN F | 7.76.81 | | | |
|--|---|--|---|---|-------------------------------------|--|---|---------------------------------------|-----|--|
| U.S. DEPAT | RTMENT OF COMMFRCF | POSTAGE AND FEES PAID | | Einer mit mit 1 | Section 2 | OWNERSHIP | of the | Acres | A | |
| BUREA | U OF THE CENSUS | U.S. DEPARTMENT OF COMMERCE | OWNED | land and buildin | ngs you are usin | g. | | | | |
| JEFFERSON | /ILLE, INDIANA, 47130 | | 3. How m | any acres do you own?. | | | None 🗌 | | 111 | |
| OFF | ICIAL BUSINESS | | | (if no land is | owned, mark X | in the square for "t (Include all ian | None.") I and tracts of | | | |
| | | | LAND RE | NTED OR LEASED FR | OM OTHERS | land rented or | leased by you | Arres | 4 | |
| | | | | and by your part separate fields, m | ners, regardiess eadows, pasture | of where located. land, woodland, a | nd wasteland.) | Acres | | |
| | | | 4. How m | any acres do you rent fr | om others? . | | None | | V12 | |
| OFFICIAL | | | (Inch | ide acres worked on share | s; also include li | and | | | | |
| U.S. GOV | ERNMENT | KUKAL KUUIE, | ,00 0 | (If · | 'None,'' mark X | and skip to questio | m [5].) | | | |
| DOCUME | NT | STAK KUUIE, UK | a. W | hat is the name and mains and mains | l address of ea l or worked on | ch landlord and shares for each? | | AN COM | | |
| | | LOZI OFFICE BOX HOLDER | | Name of | | | Acres | | | |
| (DO NOT DES | TROY) | LOCAL | | landlord Mail address | | | - | | _ | |
| " | | | | (Post office and State) | | | Acres | | | |
| | | | 1 | landlord | | | 4 | | | |
| | | | | (Post office and State) | | | | | - | |
| Dear Fellow Citiz | en | | | Name of landlord | | | Acres | | | |
| The Bureau of the | e Census is now engaged in the big jo | ob of raking a nationwide Census of Agriculture. | | Mail address (Post office and State) | | |] | | - | |
| Your cooperation | will help in the economical and a | accurate counting of the agricultural resources, | (Post office and State) | | | | | | | |
| This questionnais | e is being distributed through the Po | st Office to all boxholders in piral areas Please | [5] How n | nany acres do you opera | ite for others a | s a hired manage | r? None | | V13 | |
| examine the ques | tionnaire and fill it out at once if— | | (Ente | r the name and mail addr | ess of employer | under question 4a. | .) | | | |
| (1) You ope | rate a farm; or | | LAND RE | NTED OR LEASED TO | OTHERS (a | include any separa nd pastureland rer | ate fields, hayland, nted to others. | | | |
| (2) At any ti | ime this year you had any cattle, 4 or | more hogs, 30 or more chickens, or 20 or more | | Include land w | orked on share | s by others. Do | not include land | Acres | | |
| fruit tree | s or grapevines, or | | 6. How m | any acres do you rent to | others? | die Soli Dank.) | None | | V14 | |
| (3) In 1964 | you harvested any crops such as corr | h, hay, wheat, vegetables for sale, or nursery or | (Inclu | de land rented to others b | y you and your j | partners.) | | | | |
| A local census ta | greenhouse products. A local consult takes will call at your place soon the will pick up your questionnaire and will check | | | the acres repted to oth | ers, how many | and skip to questio | n [7].) | | | |
| to see that all the | questions have been answered. | in pick up your quotooningio and and and a | are | owned by you (or you | partners)?N | Ione 🛄 Acres _ | | | - | |
| The instructions of | on the questionnaire will help you in | filling it. Many of the questions will not apply | b. What is the name and address of each tenant and the number of acres rented to each? | | | | | | | |
| to your place and | i can be answered by checking "No" | ' or "None." The census taker will be glad to | 1 | Name of | | | Acres | i Waaa | | |
| answer questions | and help you when he calls. | kept confidential and used only to obtain totals | | Mail address | | | 1 | | - | |
| for your county. | Census takers are prohibited under a | a penalty of a fine or imprisonment from giving | | (Post office and State) Name of | | | Acres | | | |
| to anyone the ini | formation you provide. The U.S. la | w provides that your report cannot be used for | - | tenant Mail address | ····· | | - | | | |
| taxation or invest | igation. | | | (Post office and State) | | | | <u></u> | Ē | |
| We are asking vo | to fill the questionnaire and have i | it ready for the census taker when he calls. By | ACRES IN | THIS PLACE | | | Acros | in this place | 1 | |
| filling the questio | nnaire you will save time and will red | luce the cost of taking the census. | [7] Addin | g acres owned and acre | s rented from | others, | | | V15 | |
| Thank you for yo | ur assistance and cooperation. | | | (Question 3 plus question | on 4 plus questi | on 5 minus questic | on 6.) | | 5 | |
| | | Sincerely yours, | This is all the land operated by you even though part of it may be located elsewhere or in other counties. The re- | | | | | | | |
| 1 | | | maining questions (except those in Section 13) of this report, refer to the total acres of land reported for this question. | | | | | | | |
| - | (| (An Cramma | LOCATION OF LAND | | | | | | | |
| | | o y 1 / an | 8. Is any of this land (reported in question 7) located in another county? | | | | | | | |
| | | Richard M. Scammon | (If "No," mark X and skip to question [9].) | | | | | | | |
| ł | | Bureau of the Census | a. How many acres are in your county? | | | | | | | |
| 1 | | | | | | | | | | |
| | | | 0 | Same of county) | | (Name of | county) | (Acres) | | |
| Form 64-A1.15 (7-8-64) | IOWA | Budget Bureau No 41-6433 Approval expires June 30, 1965 | Non ne n | section 3 | CROFS HAR | d from the actor in | shis place (Bu a | this place | V19 | |
| CONFIDENTIAL-7 | This inquiry is authorized by Act of Cong | ress. United States Code. Title 13, Sections 5, 9, 142. | we mean t | he acres reported in question | on 7.) If you r | ent land from other | rs or work land on | shares for others, | | |
| 221, and 224, require | airing that the inquiries be answered co | mpletely and accurately, and guaranteeing that the | of the cro | report the total amount h os as sold if it was taken f | narvested, includ rom the place. | ling the landlord's Report crops plac | share. Count the ed under Governm | landlord's share ent loan as sold, | | |
| taxation, investigati | on, or regulation. | The census report cannot be used for purposes of | CORN | | | | | | | |
| A1 No. | US DEPARTMENT OF C | | [9] Was a | ny com harvested for | | (1) | (7) | (3) | | |
| Į | A - CENSUS OF | | any p | urpose this year?. No [| Yes | How many acres | How much was | How much of this | Í | |
| | Al | (Ans | wer these questions if "Yes." |) | harvested? | harvested? | or will be sold? | | | |
| State | | 10. Corn o | for all purposes (do not r popcorn)? | include sweet | Acres ★ | | | V20 | | |
| Township | | + | · · · · · · · · · · · · · · · · · · · | | Acres | Bu (Só là, shelled) | Bu (56 lb. shellad) | | | |
| and the second s | | e. Co | m for grain? | | Arres | Tone (amon un)-tai | Tent former und that | - | | |
| | Section 1,PERSON NO | ь. со | ro i o = 1 o u. she | nica) | | iene ffinan auftut | eners (Arneur matilita) | 1 | | |
| (If a mo | ember of the family or anyone else fills to that all the information is given for the | c. Co | rn cut for green or dry | y fodder (ears | Acres | | | V21 | | |
| 1. What is your n | ame? (Person in charge.) | not | nusked or snapped)? | | Acres | | | V22 | | |
| | | | d. Co | rn hogged or grazed? | •••• | L | | | V23 | |
| 2 Whee 1 | (First name) (Middle i | initial) (Last name) | (The total of the acres for questions a, b, c, and d must equal the acres for question 10.) | | | | | | O | |
| . what is your m | ועון מענדפגור | | 1 | | | | | | F | |
| (Route n | umber or street address) | (Post office) (State) | | | | | | | ١. | |
| J | | | L | | | | | | Ļ | |

Form A1 - Basic Census Questionnaire

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COVERAGE CHECK

| SORCHUME | | | | | | | . | | |
|--|--------------|---------------|-----------------|-----------------|--------------------|----------------------------------|--------------|----------|--|
| SURGHUMS | Но | (1) w m | anv | How | (2) | (3) How much | 7 | FIEL | ield seeds |
| any purpose this year?No Yes | aci | res w | /ere | W | as or o | of this year's crop | | 53. | 3. Were any alfalfa seed, clover seed, or other field seeds baryasted this year? No Ves (1) (2) |
| (If "No," mark X and skip to question [13].) | or ha | will rvest | be ted? | harv | il be vested? | was or will be sold? | | | (If "No," mark X and skip to question [80].) How many How much acres were or "clean seed" |
| (Answer these questions if "Yes.") 12. Sorghums for all purposes? | Acres | | | | | | v30 | | (Answer these questions if "Yes.") will be was or will be |
| (Include sorghums for grain, silage, | کھ | | 8992.J | | | | | | No Yes narvested: harvested: |
| forage, pasture, and strup.) | Acres | <u></u> | | Bo. | | ω. | 1 | 54. | 4. Alfalfa seed? |
| a. Sorghums for grain or seed? | Acres | | | Tons (green | weight) T | ons (green weight) | | | |
| b. Sorghums for silage? | | | | | | | V31 | 35. | 5. Ked clover seed f |
| | Acres | | | Ions rut (de | y weight) T | fons | 1 | 57. | 7. Timothy seed? V |
| c. Sorghums cut for dry forage or hay?. | | | | | | | V32 | 58. | 18. Sweetclover seed? |
| d. Sorghums hogged or graxed? | Acres | | | | | | V33 | 65. | 5. Bromegrass seed? |
| a Sorahuma far shuu-2 | Acres | | | Gallons | (| Gallons | 4 | | Lb. (green weight) |
| (Report tenths of an acre.) | | | 1 /10 | | | | V34 | 71. | /1. Kentucky bluegrass or June grass seed? □ □ ★ |
| (The total of the acres for ques | ions a. | ь, c, | d, and e | e must e | qual the acres | for question 12.) | O | 79. | 79. Other field seeds? |
| SOYBEANS | | | | | _ | | _ | | Alsike clover? White clover? Rapeseed? Give name Lb. |
| [13] Were any soybeans harvested | | . . | | U.,- | (1) | (2) | | ļ | Lespedeza? Birdsfoot trefoil? Give name Lb. |
| for any purpose this year? | No _ | ΙY | 'es 🛄 | | w many acres | was | | | Kedtop? Ladino clover? |
| (if No, more a and skip to question [25].) (Answer these questions of "Yest | | | | har: | were | harvested? | | FIEL | IELD CROPS |
| | , | | | 1.1.01 | Acres | Bu | 1 | | |
| 14. Soybeans for beans? | | | | * | | | V40 | | (Answer these questions if "Yes.") How many acres were How much |
| 15. Sovbegns for hou? | | | | * | | Tons | | | (Report tenths of an will be |
| | | | • • | <u> </u> | | | ¥41 | har | Nore any of the following crops No Yes acre if called for) harvested? |
| 16. Soybeans hagged or grazed, or cut for s | age? | | • • | * | 55 | | V42 | Tee | 801 bilds not store of an entry of the store |
| SMALL GRAINS THRESHED OR COMBIN | ED | | | | | | | [[00] | (If less than 10 hundredweight were |
| | | Γ | (1) | | (2) | (3) | 1 | | harvested, do not report acres.) |
| (Answer these questions if "Yes.") | | - | How m | nany s | How much was | How much of this year's cross | 5 | 81 | 81. Sweetpotatoes for home use or for sale? |
| | | _ | were | e | harvested? | was or will | | | (If less than 20 bushels were harvested, |
| harvested this year- | No Y | es | harvest | ted? | Bushels | Rishels | - | | do not report acres.) |
| [25] Wheet? | Imir | ٦١, | * | | | | VAD | 96. | 96. Popcorn? |
| | | ٦F | | | | | 100 | VEC | |
| 30. Oats for grain? | | <u> </u> | × | | | | 1065 | <u> </u> | \rightarrow |
| 33. Barley for grain? | | _ - | * | | | | V68 | 114 | 14. Were any vegetables, sweet corn, or melons harvested this year for |
| 34. Rye for grain? | | | * | | | | V69 | | (Do not include vegetables grown for home use.) |
| | | ٦Г. | + | | _ | - | | | (If "No," for question 114, mark X and skip to question [154].) |
| 35. Flaxseed? | | ۲ŀ | <u>.</u> | | | | - | | (Answer these questions if "Yes.") |
| 43. Other grains? | | | * | | | | V79 | We | Were any of the following vegetable crops Acres harvested |
| Proso miller' Buckwheat' Mixed grains? (Un | ieriine k | and) | | | | | | nar | (If two or more plantings of the same vegetable crop were No Yes of an acre) |
| HAY AND GRASS SILAGE CROPS | | | | | | | 1 | ŀ | made, either on the same land or on different land, report the Acros Tonths |
| (Answer these questions if "Ye | .") | _ | | (1) | (2) | (3) | 1 | 115 | 15 Tomotoes? |
| Were any of the following hay or silage cro | " / | ~ | acres | s were | tons were | this year's crop | , | 1.12 | |
| (If two or more cuttings were made from t | | $\overline{}$ | this | vested year? | harvested? | was or will | | 116 | 16. Sweet corn? |
| same field, count the acres only once but gi | ve No | o xe | A | | Tona | Tons | - | 117 | 17. Cucumbers and pickles? |
| 44. Alfalfa and alfalfa mixtures cut for | | ╗╎┍╴ | ٦. | | | | | 118 | 18. Snap beans (bush and pole types)? |
| hay and for dehydrating? | ļ L | 니다 | J ≭ | | | -+ | V80 | | |
| 46. Clover, timothy, and mixtures of | | ٦Ir | 1 * | | l | | VRO | 1.12 | |
| 49. Oats, wheat, barley, rye, or other small | | | - - | | | | | 120 | 20. Cabbage? |
| grains cut for hay? | | 니니 | 1 | | | | _ ¥85 | 122 | 22. Cantaloups and muskmelons? |
| for feeding unthreshed.) | | | - pass i | <u>s 720</u> | | <u> </u> | 3 | 128 | 28. Green pecs? |
| 51. Any other hay? | . | |]* | | | | V87 | 1.00 | |
| (Include bromegrass, miller, old meadows, | | | | | | | 8 | 132 | |
| wild grasses.) | | | 1.780.58 | | Tons (green weight | } Tons (green weight) | 1 | 134. | 34. Asporagus? |
| 52. Grass silgae made from grasses, alfaifa | _ | 1- | _ | | | | | 152 | 52. Other? (see list below) |
| clover, or small grains? | , [<u>[</u> | ЛГ | _ ★ | | L | .1 | V88 | | Beets (table) Horseradish Rhubarb Give name Carrots Hot peppers Spinach ; /10 |
| (Include also hay crops cut and fed green |) | | | | | | | 1 | Cauliflower Lettuce and Squash Eggplant romaine Sweet peppers Give name + ! /10] |
| | | | | | | | | | Green lima beans Pumpkins Turnips L. |
| 1 | | | | | | | | 153. | 53. What was the value of all vegetables sold this year? \$00 V |
| 1 | | | | | | | 1 | | (Include the landlord's share; do not include the value of Irish and sweet potatoes.) |
| | | | | | | | 1 | | |
| | | | | | | | l | l | |
| | | | | | | | 1 | 1 | |
| | | | | | | | 1 | 1 | |
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Form A1 - Basic Census Questionnaire

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APPENDIX B - FORMS

| r * | | | | | | | | 1- | 100000000 | | | | | | | | |
|--|---------------------------|------------------------------|-----------|---------------|-------------------|------------------------|-------------------------|----------|------------------|----------------------|---|------------------------------------|------------------------------------|-------------------------------|----------------|---------------|------|
| BERRIES | | | | | | | \rightarrow | D | | | Section 4LAND US | E AND I | RRIGAT | ION THIS YE | AR, 1964 | \rightarrow | F |
| [154] Were any berries harvested for sale this year? | No 🗌 | Yes | | | (How m | 1) any acres | (2) How much | 1 | 223. Ac | res in t | this place (copy acres fro | m question | 7) | | Acres | | voi |
| (it inc, mark A and skip to question (Answer these questions if " | 'Yes.'') 🗲 | | | | were h (Report | arvested? rt tenths | was harvested? | } | CROPLA | ND | We would like to ask yo | u several q | uestions | regarding the | Acres | | 4- |
| Were any of the following berry crops harvested this year | | | 110 | Tes | Acres | Tenths | Quarts | 1 | 224 Ho | | use of the land in this pi | ace during | racts fr | om which | | | - |
| 155. Strawberries? | | | | | * | /10 | | vo1 | cro | ps wer | e harvested (including h | ay cut) this | year? | | | | |
| 156. Raspberries? | | | | | * | /10 | | voa | whi | ich one | e or more crops were har | vested or ha | iy was c | ut this year, | | | |
| 162. Other berries? | | | | | | | | | grag | pevines | ; and acres in nursery and | greenhouse | product | s.) | l (2009 | | |
| Blackberries' | Give nam | c | | | * | /10 | |] | Check an | swer t | o question 224 by answe | ering quest | ons a, l | o, and c below | | | |
| Gooseberries? | Give nam | e | | | * | /10 | |] | a. Add a and e | acres o enter te | otal here | ection 3) | | | | | - |
| TREE FRUITS, NUTS, AND GRAPE | s | | | - | | | | | b. From two c | how π rops h | nany acres of land were arvested this year? | | A | tr e1 | | | - |
| [163] is there a total of 20 fruit trees. | . nut tres | 85. | | | | | | ł | c. Subtra | the en | acres for b from a and en | ter differen | ce 🗛 | ;7 0 5 | | | |
| and grapevines on this place? | | | | | No 🗌 | Yes 🗌 | | | questi | on 224 | by more than 3 acres) | · · · · | · . | | | | |
| (If "No," mark | k X and si | kiptoqu | iestion [| [214]. | .) | | | | 225. Hov | w mony postur | y acres of cropiand were (or mazing) this year | s used only | | None 🗌 | | | V12 |
| ur tes, answer questions 164 was harvested, give the reaso | - inrough on at bott | tom of th | nis page | e.) | - | | | | 227. Ho | w man | y acres of cropland were | used only | for sol | لي ۱۰ | Acres | | |
| 164. How much land is in bearing and | nonbear | ing frui | t arche | ards, | ł. | Acre | ns Tenthu /10 | 1020 | not | harve | sted and not pastured th | , and legu is year? | nes | None 🗌 | Arres | | V14 |
| groves, viceyaras, and planted nu | | •••• | ···· | (1) | | (2) | (3) | 1.10 | (In pas | clude o tured o | cropland in grass or legue r grazed, in the Soil Bank, | ne crops no feed grain, a | nd whea | sted and not it programs.) | | totals | |
| (Answer these questions if "Yes." | ") ~ _ | | - How | many | (treesHow | v many trees | How much was | 5 | 228. On | how m | any acres did all crops | fail this ye | ar? . | None 🗌 | | be | V15 |
| Were any of the following kinds of | f fruit | Nolva | are | NO | T of be | are of | harvested this year? | | (Do | o not in | nclude land in fruits or nu | (S.) | | Naon 🗖 | Acres | the same | VIA |
| place- | n This | | | Numbe | - <u>5</u> -, 00 | Number | Bu. | 1 | IIY. How | w many | y acres of cropland were [(Include as woodland a | il woodlot | s and ti | mber tracts. | | | 1 |
| 165. Apples? | | | 1 | | | | Bu. | V21 | WOODL | AND | cutover and deforested | and which | has val | ue for wood | Acres | | |
| 166. Peaches? | | | 1 | | _ | | Bu. | V22 | 230. Ho | w man | y acres of woodland we | | pa | | 1 | | |
| 169. Paars? | <i>.</i> | 미디 |] | | | | | V25 | pas | tured (| (or grazed) this your? | •• • | • •• | None | Acres | | V20 |
| 172. Grapes? | | |] | | | | 18. | V28 | not | e many pastur | ed (or grazed) this year? | • | | . None | | | |
| 176. Plums and prunes? | | | I | | | | BU. | V32 | OTHER | LAND | 7 | | | | per van | | |
| 179, Cherries? | | |] | | | | LD. | V35 | 212 1 | | | - | | | Acres | | |
| 182. Apricots? | | | ונ | | | | 80. | V38 | (not | t cropla | and pasture and not woodl | and pasture | ?. | None 🗌 | | | V30 |
| 200. Planted black walnuts? | | |] | | | | ць. | V 57 | | | (If ''None,'' mark X an | d skip to que: | tion [23: | 3].) | | | |
| 213. Other fruits and nuts? | | |] | <u>XØ</u> | | 34 YAND | | | a. Of t | this oth sider t | er pasture, how many a to be improved pasture? | cres do you Nor | , | Acres | | | |
| Nectarines? Quinces? Give name Chestnuts? English | | | | | | | Lb. | | (In irru | nproved | by liming, fertilizing, see | ding. weeds and h | nish) | L | | | |
| and hazelnuts? Give name Pecans? Almonds? | | | | | | | Lb. | | | . | | inclus and b | 10011.) | | Acres | | |
| NURSERY AND GREENHOUSE PRO | ODUCT | S, FLO | WER | AND | ٦ | | \rightarrow | F | [233] Ho lar | nes, roc | ny acres were in house i ads, ditches, and wastela | ots, barn le nd? | o ts , | None 📃 | | ₩_ | V40 |
| VEGETABLE SEEDS AND PLANIS, | , AND | BULBS | | | | | | - | Ad 225 | ld these 9, 230, | e acres (questions 224, 22 231, 232, and 233) and e | 5, 227, 228 inter total h | , iere —— | | Acres | | Ο |
| seeds or plants, flowers, or built | se produ is grown | for sale | e this y | vege vear? | | . No 🗌 | Yes | | IRRIGAT | ION |] | | | | <u> </u> | | Ĩ |
| (If "No," mark X and skip to quest (Answer these ques | tion.[219] stions if " |] .) Yes. '') | | - [| | 1) | (2) What will be | 1 | 234.04+ | the tot | l land in this place (rep | orted in our | | 22) | | | |
| | | • | | Yes | used for a | growing in | the value of | | how | v many | acres were irrigated th | ils year? | | None | Acres | | V50 |
| 215. Nursery products (trees, shrubs, | vines, | | | | Acres | Tenths | Jaies 101 1904 | 1 | 235. Of 1 | the lan | (If "None," mark X an d used only for pasture o | d skip to que: r grazing | ition [24 | 1].) | | | |
| ornamentals)? | | | | | * Square fee | /10 | \$00 | V01 | this | year w many | (reported in questions 225 gares were irrigated? | and 232). | | None 🕅 | Acres | | - |
| and bedding plants for sale— | it greens, | , | | | | | | | 236. Fro | m how | many acres of irrigated | | | | | |]_ |
| a. Grown under glass or other p | rotection | n? | | | Acres | Tenths | | V02 | lan (Be | a were sure to | o include all irrigated land | ar 7 from which | hay wa | None | Acres | | |
| b. Grown in open? 218. Vegetables grown under aires op | r other | ., | | | * Square feet | /10 |) \$00 | | all i crop | irtigated ps, and | d land in both bearing and irrigated land from which | any crops y | g fruit ai vere har | nd nut vested.) | | | |
| protection, flower seeds, vegetab vegetable plants, bulbs, and musi | ble seeds hrooms- | ·, | | | | | | 1 | | _ | (If "None," mark X or | nd skip to qu | stion [24 | 1] .) | | | |
| a. Grown under glass or other p | rotection | זר | | 旧 | Acres | Tenths | {{ | V10 | 237. Wh har | at pari vested | of the land from which (question 224) was irrig | crops were ated this) | ear?,. | All 🗌 | Part | | V51 |
| b. Grown in open? | •••• | | | | * | /10 | s00 | | | (If ''P | (If "All," mark X and art," mark X and answer aue | skip to questions 238. 2 | tion [24] 39, and 3 | 1].) 240.) | - | | |
| OTHER CROPS | | | | | | | | | 238. a. | How m | any acres of corn for gr | ain were | ., | None 🗖 | A | | |
| [219] Are there may other crops that w | vere or v | will be i | | ted th | its | | | ł | ь. | How m | any bushels of corn for a | rain were | • • • • • | , mone | ncres | | 1.01 |
| year on this place—Sugar beets Root and grain crops hogged or g | tor suga grazed? | r? Broom | corn?. | | | No 🗌 | Yes 🗌 | V99 | | harves | ited from this irrigated in | and this yes | ar? | ••••• ••• | Bushels | | |
| (If "Yes," Name of crop? Acres | sted? | Quantity | , | Quan sold | tity Uni | it of V | alue of sales? | 1 | 239. a. I | How m were i | any acres of soybeans f harvested from irrigated | or beans land this y | ear?. | . None | Acres | - | V 63 |
| for each | ····· [fi | ui resido | . | be so | id? | 434141 | | | ь. | How m | nany bushels of soybean | for beans | ware | | | | _ |
| ¢rop.j | | | | | | s. | .00 | | 240. Wh | at was | the name and number o | f acres irrly | art jated | · · · · · · | Bushels | | |
| | | | | | | | | - | for | each c | rop harvested from Irrig (Do not in | ated land t iclude corn | h <mark>ls year</mark> for grau | r n or soybeans.) | | | V99 |
| | | | | | | | | | Census code | Nan | ne of crop irrigated? | Acres | Census | Name of c | rop irrigated? | Acres | 1 |
| | | | | | | | | | 1 | - | <u> </u> | "ingateu? | Luae | , | | irrigated? | |
| | | | | | | | | | } <u>}.</u> | | | <u> </u> | | 3. | | | |
| | | _ | | | • | | | <u> </u> | <u>1</u> 2. | | | L | | 4. | | | |

Form A1 - Basic Census Questionnaire (p. 3 of 6 pp.)

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COVERAGE CHECK

| Section 5.—FOREST PRODUCTS THIS YEAR, 1964 | G | SHEEP AND LAMBS | 1 |
|---|------|---|---------------------|
| FOREST PRODUCTS Forest products are important on many farms. We wish to obtain answers | | [266] Are there any ewes, rams, wethers, and lambs on this place? No 🗌 Yes | <u>]</u> * |
| 12411 Now much was as will be received in 1064 from | | 267. If "No," were there any on this place any time this year? No 🛄 Yes |] |
| on the stump sale of standing timber or trees? None sold \$00. | V21 | (If "No" for both questions 266 and 267, mork X and skip to question [277].) | |
| (Include standing timber sold for pulpwood, sawlogs, or other wood products.) | | 268. How many ewes, rams, wethers, and lambs are on this place? | V20 |
| 242. How much was or will be received in 1964 from the sale of | | (If "None," mark X and skip to question [269].) | - |
| poles and piling, bark, bolts, and mine timbers? . None sold\$00 | V22 | Of this total, how many are | |
| fenceposts, sawlogs, and Christmas trees.) | | a. Lambs under 1 year old? | -1- |
| (Do not report below any products sold on the stump. Products (1) (2) | 1 | b. Ewes 1 year old or more? | 4- |
| sold on the stump should be included in question 241.) How much (Answer these questions if "Yes.") was or will was or will | | c. Rams and wethers 1 year old or more? | |
| Were any of the following forest products Nic Ver in 19642 in 19642 | | (The total for questions a, b, and c must equal the number for question 268.) | C |
| cut or sold this year- Cords (4'x4'x8') Cords | | [269] How many sheep and lambs were or will be sold this year? None Number sold | V2 |
| 243. Firewood and fuelwood? | V23 | a. How much was or will be received from the sale of sheep and lambs in 1964? | <u></u> |
| Number Number | | Number Lb. of wool | P |
| 245. Fenceposts? | V25 | 270. How many lambs were shorn in 1964? None shorn_shorn_shor | V2: |
| 246. Sawlogs and veneer logs? | V26 | 271. How many sheep were shorn in 1964? None shorn shorn | |
| Number | 1 | | 7- |
| 247. Christmas trees? | V27 | HOUS AND PIGS | |
| Section 6RACE, AGE, RESIDENCE, OFF-FARM WORK, AND RECREATION INCOME | 4 | [277] Are there any hogs and pigs on this place? | |
| In order to classify farms in your county, we need some information regarding you, and whether you work off your farm. We wish to obtain your answers to several questions. | | 278. If "No," were there any on this place any time this year? | |
| (1) (2) (3) What race? | V50 | (# 140 For point questions 2/7 and 2/8, mark A and skip to question [283].) | [|
| 249. What is your race? (Mark one.) -> White Negro Other | | sows and boars, are on this place? None Number | _\V40 |
| 250 Now old ware you (the person in charge) at your last histoday? Vorce | | Of this number, how many are— | |
| zou. Now die were you (the person in charge) at your last birmadyr . Trais | 1 | a. Hogs and pigs used or to be used for breeding? None 🔲 Number | |
| 251. Do you live on any part of this place? | 1- | b. All other hogs and pigs? None 🗌 Number | |
| 252. When did you begin to operate this place? | | (The total for questions a and b must equal the number for question 279.) | C |
| (Report month if you began to operate this place since January 1, 1965.) | | 280. How many hogs and pigs have been sold this year? None Number | - 14 |
| OFF-FARM WORK | | 281. How many hogs and pigs will be sold between now and December 31? None Number | |
| business, profession, or on someone else's farm. Include days you expect to work off your | | 282. How much was or will be received from | |
| farm between now and December 31, 1964. (Do not include exchange work) | - | the sale of hogs and pigs in 1964? | 00 |
| (Mark one) | | SOWS AND GILTS FARROWING | |
| None 49 days 99 days 199 days more days | 4- | 283. How many litters were farrowed since June 1, Number | |
| RECREATION INCOME | | this year or will be farrowed before December 1? None of litters | |
| 256 Max any income agreed this years or will gay income be arread | | 284. How many litters were farrowed between December 1, last year and June 1, this year? None of litters | |
| from providing hunting, fishing, plenicking, camping, boarding and lodging, | 1_ | CATTLE AND CALVES | |
| (If "No," mark X and skip to question [256].) | 1 | [285] Are there any cattle and calves on this place? | |
| 255. How much was or will be your gross income in 1964 from boarding and lodging, and recreational activities and facilities on this place? | , | 286. If "No," were there any on this place any time this year? | |
| Section 7 -POULTRY AND LIVESTOCK NOW ON THIS PLACE AND | Ľ | (If "No" for both questions 285 and 286, mark X and skip to question [304].) | VS |
| LIVESTOCK SALES THIS YEAR, 1964 | П | (If "None," mark X and skip to question [288].) | - |
| Now we would like to ask you about the poultry and livestock on this place. (By this place we | | Of this total, how many are— | |
| mean the acres reported for question 7.) We want you to report all animals on this place including those owned by you, by your landlord, or anyone else and also all poultry or livestock on this place | l | a. Cows? None Number | \dashv |
| being fed under a contract or on a custom basis. | | b. Helfers and helfer calves? None Number | |
| POULTRY | | (Do not include heifers that have calved.) | |
| | 1 | c. Bulls, bull calves, steers, and steer calves? None Number | 1- |
| [256] Are there any chickens, turkeys, or other poultry on this place? | | CALVES AND CATTLE SOLD | " C |
| 237. If "No," were there any on this place any time this year (If "No" for both questions 256 and 257, mark X and skip to question [266].) | 1 | CALVES AND CALLE JOLD | |
| 258. How many chickens (hens, pullets, roosters, etc.) | VOI | [288] How many calves have been sold this year? None Number | |
| a. Of this number, how many are | 1_ | 289. How many calves will be sold between now and December 31? | |
| hens and pullets of taying age? | | 290. How much has been or will be received | |
| 259. How many dozens of chicken eggs were or will be sold this year? (Include eggs sold or used for hatching purposes.) None Dozens | 1- | from the sale of caives in 1964? | 00 - |
| 260. How many brollers and other meat type chickens | Vn | 291. Of the calves sold or to be sold in 1964, how many were fottened on grain and concentrates and sold for slaughter? | |
| (Report all broilers sold or to be sold including those grown for others under contract.) | 1.01 | 292. How many cattle, not counting calves. | 7- |
| 261. How many hens and roosters were or will | | have been sold this year? None Number | V5: |
| be sold for slaughter this year? | V03 | 293. How many cattle, not counting calves, will be | _ |
| 262. How many turkeys and turkey fryers were raised this year? None Number | V04 | sold between now and December 317 | - |
| (Include those raised from poults hatched, poults bought, and those raised for others under contract.) | | 294. How much was or will be received from the sale of cattle in 1964? | ₀₀ — |
| 263. How many turkey hers now on hand are | | 295. Of the cattle sold or to be sold in 1964, how many were | |
| you Keeping for breeding next year? | | fattened on grain and concentrates and sold for slaughter? None 🛄 Number | |
| 264. How many started pullets, ducks, geese, and Give | | | - |
| (Do not include broilers or chickens sold for slaughter.) | 1 | | |
| 285. How much was or will be received in 1964 from | | | |
| the sale of started pullets, turkeys, ducks, geese, and miscellaneous poultry, and their eggs? . None sold Value of sales \$00 | v19 | | |
| (Do not include chicken eggs sold, chickens sold for slaughter, and broilers.) | + | | |



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APPENDIX B - FORMS

| Section 8 -COWS MILKED, MILK AND CREAM | SOLD, C | THER | | . | Section 10 _AGRICULTURAL | CHEMICALS AND | LAND-USE PRAC | | 1 |
|--|------------------------|---------------------|-------------|----------|---|--|---|-------------------------------------|-------------------|
| ANIMALS SOLD AND TO BE SOLD THIS YEAR, AND CO | ONTRA | CTS, 196 | 4 | | FEPTILIZER AND LIME We would lik | e to ask you several q | uestions regarding | fertilizer, .lime, | |
| COWS MILKED | | | | | sprays, and du plications of fe | ists used on this place d ertilizers, lime, sprays, a | uring 1964. Pleas nd dusts paid for by | e report all ap- y your landlord | |
| 296. How many cows and helfers were milked yesterday? | None 🗌 | Number_ | | V60 | as well as qua operator. | intities applied on this | place by a contra | ctor or custom | |
| 297. How many milk cows were on this place yesterday? | None 🗌 | Number. | | | 323. On how many acres were commerc | ial fertilizer | N | 4 | V2 |
| MILK AND CREAM SOLD (Report all sales of milk and cream pro | oduced of | n this pla | ice in the | | and fertilizing materials used in 196 (If ''None,'' mark X | and skip to question [324] | . None [_] | Acies | |
| entire year 1964, including estimated sales year. Where sales are divided with land | lord, inclu | de his sh | are in the | | | (1) | How much | was used- | |
| total sales reported.) | | | | | (Answer these questions if "Yes.") | On how many acres was | (2) Dry materials? | (3) Liquid materials | ? |
| 299. Was any milk or cream sold, or will any milk or cream be sold from this place this year? | | No [| Yes 🗌 | | on any of the | lo Yes fertilizer used? | (Include fock phosphate) | (Include annyord ammonia) | nus |
| (If "No," mark X and skip to que | stion [304 | l.) | 111- | 4 | tollowing crops- | Acres | Tons Tenths | Tons Ten | ths (10) V21 |
| | (^{a.} | LD. OF M | ark. | VAI | a. Hay and cropiand pasture? | | 1 /10 | | 10 |
| 300. How much whole milk was or will be sold to plants and dealers in 1964? None | | b. Galle | ns of milk | 1 | cropland)? | | 1 /10 | / | 10 922 |
| (Report either in pounds or gallons of milk or pounds of fat in milk.) | _) | <u>c 1h a</u> | fat in milk | V62 | c. Corn? | ┛║╧┛┝━━━━╋ | /10 | / | 10 23 |
| | [] | | 10, 11 11 | V63 | e. Soybeans? |][[] | /10 | / | 10 ¥25 |
| 301. How much whole milk was or will be sold directly | | | | | f. Wheat? |][]] | /10 | / | 10 126 |
| to consumers, stores, and restaurants in 1994f None | Pour Pour | nds of | | V04 | n. All other crops? | | /10 | / | 10 135 |
| (If unable to report pounds of fat directly, multiply | L fat i | n cream_ | | V65 | [324] How many scres were ilmed in 1964 | 4? | None 🗍 | Acres | |
| gallons of cream sold by 21/2 to get pounds of fat.) | rion 2001 | | | | (If "None," mark X | and skip to question [326] | .) | _ | |
| approved for fluid consumption? | | No [|]Yes | V66 | 325. How much lime or liming material v (Include ground limestone, hydrated : | was used in 1964? and burnt lime, marl, | | Tons | |
| OTHER ANIMALS SOLD | | | | | oyster shells, etc. Omit lime used for | or sprays or sanitation.) | | | |
| | | | | | SPRAYS, DUSTS, ETC. | | | | |
| honey, or other livestock products sold or will any be sold in 1964 | ? | No [| Yes 🗌 | | [326] How many acres of the following c | crops were treated in | 1964 by spraying, | | |
| if "Yes," give name of animal or product sold and number or Number | or | Value o | f | | dusting, or other methods to control (Count the acres only once | i insects and diseases? e if treated more than or | nce.) | | |
| amount sold or to be sold Name amount _ | | _sales \$_ | 00 | | a. Grain crops? (Corn, wheat, o | oats, rye, barley, etc.) | None 🗌 | Acres | V40 |
| CONTRACTS | | | | | b. Alfalfa, clover, and other hay | crops? | . None | Acres | V41 |
| 306. Did you have in 1964 a contract or agreement with a dealer, | | No | | Voo | d. Vegetables grown for sale? (| (Do not include potatoes | .) None | Acres | |
| processor, or a cooperative to produce any farm products | • • • • • • • • • • | | | | e. Fruits and nuts? | | None | Acres | V44 |
| a. If "Yes," give names of farm products covered by the contract or agreement | | | | _ | (Do not include berries and sma | all fruits.) | | | |
| These questions are to | | ., No [| Yes 🗌 | | f. Seed crops and other crops?. (Sovbeans, Irish potatoes, other) | seed crops, berries, etc.) | . None | Acres | V45 |
| ENUMERATOR. | د مستند ۲۰ کند و ب | . No 🗌 | Yes 🗌 | L | 327. How many acres of the following cr | rops or land were trea | ted in 1964 by | | |
| Section 9EQUIPMENT AND FACILITIES NOW ON | THIS PL | ACE | | C | <pre>spraying, dusting, or other methods ar brush? (Count the acres only once</pre> | for the purpose of content of the formation of the formation of the second seco | ntrolling weeds ace.) | | 1 |
| Now we would like to ask you several questions about equipment and facilit | ies on this | place. | | 7 | a. Corn ? | | None | Acres | V50 |
| Report only equipment and facilities that are in operating order and were used du | or anyon uring 1963 | e else. or 1964. | | | b. Small grains? (Wheat, oats,) | rye, barley, etc.) | None | Acres | |
| EQUIPMENT | | _ | | | d. Other crops? | | None | Acres | |
| How many of the following are on this place— | | | Number | | (Soybleans, other seed crops, ber | rries, etc.) | | | |
| 307. Automobiles? | None [| | | V01 | e. Pastureland? | | None | Acres | V54 |
| 308. Motortrucks (include pickups)? | None [| ٦L | | V02 | 328. How many of the following animal spraving, dusting, or other methods | s were treated extern for the purpose of cor | ally in 1964 by trailing insects? | | |
| 309. Wheel tractors other than garden and motor tillers? | None | <u>ا</u> ٦ | | V03 | (Count the animals only one | ce if treated more than o | nce.) | Number | |
| 310. Crowler tractors? | None [| 5 | | V04 | a. Cattle and calves other than m | nilk cows? | . None | of head Number | - v @ |
| 311 Gordon tractory and mater sillars? | None [| - | | 105 | b. Hogs, sheep, and goats? | | . None | of head | V64 |
| 312. Grain and bean combines: | None | <u> </u> | | 100 | LAND-USE PRACTICES | | | | |
| d. Puli type? | None [| - | | 1400 | 329. How many acres of cropland used for crops this year ware formed on the | or grain or row contour? | None | Acres | V70 |
| b. Self-propelled? | None [| ┙┝ | | V07 | 330. How many acres of stringrouping s | systems for | | | |
| 313. Pickup balers? | None | _⊢- | | V08 | soil-erosion control were on this pi | ace this year? | . None | Acres | ודע_ |
| 314. Hay conditioners? | None [| ⊐⊢ | · | V09 | 331. How many artificial ponds, pits, reso and earthen tanks are on this place | ervoirs, ? | None | Number | ¥72 |
| 315. Crop driers? | None [| ⊐ ⊢ | | V10 | (If "None," mark X o | and skip to question [332]. | , 1 | | |
| 316. Compickers including picker-shellers and corn picking heads for combines? | None [| ב | | vn | a. When filled to capacity, how many | y acres do these water o (Report tenths | of an acre.) | Acres/ | 10 |
| 317. Field forage harvesters: a. Cylinder or flywheel type? | None | ήL | | V12 | [332] Did you have any land this year in ti | he crop diversion prog | am- | | |
| b. Flail type? | None [| | | V13 | a. For wheat? | | | No TI Yes T | |
| FACILITIES | | | | | b. For feed grains? (Corn. grain | sorghums, and barley.) | | | - - |
| The way have on this place | | | | V14 | | 2 | | | ┛┝╍┛ |
| 318. Telephone? | | . No | Yes 🗌 | | | | | | |
| 319. Television set? | | . No |] Yes 🗍 | - | | | | | |
| 320. Home freezer? | ••••• | . No | Yes 🗌 | - | | | | | } |
| 321. Milking machine? | ••••• | No [| Yes 🗌 | - | | | | | |
| 322. Bulk milk tank? | • • • • • • • • | No | Yes 🔄 | | | | | | |
| | | | | | | | | | 1 |
| | | | | | | | | | 1 |
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| | | _ | | _ | | | | | |



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COVERAGE CHECK

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|----------|--|---------------------------------------|----------------------------|----------------|--------------------|------------------|---------------|----------------------------------|---|---|--|--|--------------------------------|-------|
| 333. | We would like to ask you for a list of a in which you live First, we would l | and several quest | ions regard | ding th | e persons now liv | ing in the house | se In C | Column 5, ent | er for | the highest grade o | f school completed, a r | number as follows: | al enter the sumber of | 1 |
| | which you live. | son in charge fir | st and the | n othe | r persons living i | n the house | If grad | le completed, s | such as | 1, 2, 3, 4, 5, 6, 7, | or 8; for high school, a | enter 9, 10, 11, or 12 de | pending on the highest | |
| | the place is operated by partners, enter upp 2 and list after the name of the t | the name of the | e partner i | n Colu | mn 1 and write ' | 'partner" in C | ol- com | pleted enter 1 | 16. I | nclude in Column | s as farmwork or chord | s, work in fields, milki | ng, feeding and care of | |
| | partner lives. | partner, the ham | e or each | person | itving in the no | use in which t | supe | ervising farms | vork.) | care and repair or | equipment and build | ngs, keeping farm feco | ros, and planning and | |
| | (List person in charge first. | Answer these each p | question person | ns for | | How many | A On hor | inswer these | quest | How much | did this person receive | or will be receive in 19 | 64 from- | |
| | Include everyone who- usually lives in the house in | Relationship to person in | Sex? | | What was the | hours did | did t | his person | Wag | es or salary, com- | Washing at any | Social Security | Peer for form and | 1 1 |
| | which the farm operator lives. Do not include | charge? (Write wife, son, | (Write M for | at | (or year) of | work on this | place | in 1964- | missi all j | ons, and tips from obs before taxes | nonfarm business or | payments, pensions, | nonfarm property, | |
| | college students away at school, persons away in the | daughter, father, hired | male and F for | last birth- | completed? (See | farmwork | At farm | n-At | and () | deductions, etc.? Do not report | (report net income | unemployment | Soil Bank payments, | |
| | Armed Forces, and persons away in institutions.) | man, partner, | female.) | day? | above.) | chores last | anothe | r nonfarm work? | inc | tome from this farm.) | expenses)? | welfare payments? | oil leases, and other sources? | |
| | (1) | (2) Parron in | (3) | (4) | (5) | (6) | (7) | (8) | None | (9) | (10) | (11) | (12) | |
| V01 | 1 | charge | | Ļ | | | | | | \$00 | .00 | s00 | .00 | VOI |
| V02 | 2. | | | - | | | | | | \$00 | .00 | s .00 | .00 | V02 |
| V03 | 3. | | | ļ | | | | | | \$00 | .00 | \$00 | .00 | V03 |
| V04 | 4. | | ļ | | | | | | | \$00 | 00 | \$ | .00 | V04 |
| V05 | 5. | | | | | | | | | \$00 | .00 | .00 | .00 | VOS |
| 40V | 6. | | | <u> </u> | | | | | | \$00 | \$.00 | .00 | .00 | V06 |
| V07 | 7. | | | | | - [] | _ | | | \$00 | .00 | .00 | .00 | V07 |
| V08 | 8. | | | | | 0 | | | | .90,00 | .00 | .00 | .00 | V08 |
| V09 | 9. | | | | | [] | _ | _ | | \$00 | \$.00 | \$.00 | .00 | V09 |
| V10 | 10. | | | <u> </u> | | | | + | | \$00 | 00 | 000 | 00 | V10 |
| | Section 12.—SELE HIRED W | CTED FARM E | YEAR. 1 | TURE: 964 | AND | → | -Y | Section | 13 | RENTAL AGREE | MENT, FARM VALU | E, AND FARM REA | L ESTATE DEBT | |
| EXI | ENDITURES We would like to ask s | everal questions a | about expo | enses fo | or this place. (B | y this | - - | RENTAL AG | GREEA | MENT | | | | 7 |
| | expenses paid by your | landlord. Be su | re to inclu | ide esti | mates of expenses | s paid | | (Include | e land | worked on shares.) | (Copy from question | 4.) | hcres | 1.1 |
| | sons for whom you fed | poultry or lives | tock unde | r contr | act.) | y per- | | 349. Do you | pay 1 | (It None, to your landlord a | mark A and skip to ques | tion [333].) | No 🗌 Yes 🗌 | - |
| 334 | (Corn, oats, barley, grain sorghums, | rye, and wheat) | in 1964? | | None 🗌 💲 _ | | 00 VO1 | a. If | "Yes, | " how much for t | ne year? | | s .oo | - |
| 335 | How much was or will be spent fo cially mixed feeds, milifeeds, and | or the purchase feed suppleme | of comments in 196 | or- i4? | None 🗌 🖇 | | 0 102 | 350. Do you 351. Do you | υ pay | to your landlord (to your landlord c | any share of the crop my share of the | s (such as ¼, ½, ½)?. | No Yes | - |
| İ. | (Include not only mixed feeds, mine biotics, but also feeds such as scrate | eral supplements h feed, bran, soy | i, and anti- ybean meal | I, | _ | | | livesto 352. Do voi | ck or u have | livestock products this land under | (such as 14, 14, 14) | ont (such as a fixed | No 🚺 Yes 🗍 | - |
| | cottonseed meal, etc.) a. How many tons of feed were o | r will be purcha | sed in 196 | 54? | Tons _ | /1 | • — | quantit of land | y of ar lord, r | ny product, upkeep ent free, etc.)?. | of land and buildings, | payment of taxes, keep | No 🗌 Yes 🗌 | - |
| 336 | . How much was or will be spent fo | (Report ten | ths of ton | s.) | _ | | | FARM VAL | UE | low we would like | to ask you some ques I buildings you own, or | tions about the value | | |
| | of hay and other roughage in 19 | 647 | • • • • | | None \$_ | | 0 V Q4 | [353] About | how | much would the la | and and the | | (2) Total value | |
| 337 | How much was or will be spent calves, hogs, pigs, sheep, lambs, a | for the purchas and other livesta | se of catt ock in 196 | ie, 4? | None 🔲 💲 | | 00 V06 | buitdi | ngs se | dl tor— | | None Acres | Total value | |
| 338 | (Include estimate of cost of livestock). How much was or will be spent | for the purche | act.) ase of ba | Ьу | | | | a. L | (Cop | y acres from questi | on 3.) | | | V21 |
| | chicks, pullets, poults, and other poults, and other poults (Include estimate of cost of baby chi | oultry in 1964?. cks and poults ra | aised by yo | Ju | None 1 \$_ | | 0 107 | b. L | (Cop | y acres from questi | on 4.) | | | V22 |
| 335 | under contract.) • How much was or will be spent for | or the purchase | | | _ | | | c. Le | (Cop | y acres from questi | ged for others? on 5.) | | \$00 | 0 V23 |
| 1 | of seeds, plants, buibs, and trees (Include expenses for seed for a | in 1964? | wheat, In | ish | None 🏼 💲 | 0 | VOB | d. L | and and and (Copy | nd buildings ronte y acres from question | d to others? on 6.) | | | V31 |
| | potatoes, grasses, and vegetables.) | the nurshate | | | | | | FARM REA | L EST | TATE DEBT | | | | |
| 1 | of fertilizer and fertilizing materic (Do not include cost of applying) | ils in 1964? | • • • • • • • • • • | | None 🗌 💲 | 0 | 0 409 | 354. Are the | ere an | y debts represent deeds of trust, lon | ed by real estate d purchase contracts | | | |
| 341 | . How much was or will be spent for | or the purchase | | | None 🗔 🔺 | | | on lan | d and by ve | buildings (reporte | d in question 3) artners? (Mark one | •.) № ∏ Y | es owned | V40 |
| 347 | of gasoline for the farm business | or the purchase | | | | | | if "Ye | s," is i | any part or all of | those debts owed to- | | | |
| | of Diesel fuel for the farm busines | is in 1964? | | ••• | None 🗌 💲 | | » – | a. A a | n insu | rance company, o | r a commercial or say | rings bank? | No 🗌 Yes 🗌 | - |
| 343 | How much was or will be spent to butane, and propane for the farm | for the purchas business in 19 | e of LP g 264? | cis, | None 🔲 💲 | | ») — | b. A a | relati | on from whom you lve, other individu | purchased the land ials, a savings and lo | and buildings, an | | |
| 344 | How much was or will be spent for kerosene, fuel all, motor all, and g | of piped g orm busin | cis, 865 | | | | a | ssocia | tion, a mortgage tion, or a State la | an fund? | y, a production creat | No 🗌 Yes 🗌 | - | |
| | in 1964? | | | None 🚺 🏅 | ,. | ²⁰ | li P | f "Yes rincip | ," for b, how mu al now owed on t | h is the total unpaid hese debts? | | \$00 | , | |
| 34 | customwork, and contract work | in 1964? | , | | None 🗌 💲 | | v15 | () ir | Do no nclude | t include debts secu amount of debt ow | red only by livestock, r ed a Federal land bank | nachinery or crops. Do , insurance company, | not | |
| | and customwork such as grinding an | nd mixing feed, j | plowing, c | -000 | | | | | ommer | cial or savings bank | c, or the Farmers Home | 2 Administration.) | | + |
| | work such as fruit picking, berry p | picking, fruit ha | rvesting, | etc. | | | | 355. On wh | at dat | e did you fill this a | uestionnaire? | (Month an | d day) | V50 |
| 340 | b. How much was or will be paid in a | 54? | None 🔲 💲 | | 0 V16 | | Sectio | n 14.—ENUMER | ATOR'S RECORD-1 | o be filled by Censu | s Enumerator | | | |
| | (Include payments to members of the or to be made for Social Security tax | he family and pa es. Do not incli | iyments m ude payme | ade ints | | | | Who furnished the information | 0 | perator W | life or other member of o | perator's family | Landiord | |
| <u> </u> | for housework, customwork, or con | tract work.) | | | | | | in this reports (Mark one.) | н | Ired laborer 🗌 Ne | ighbor Other | (Give name) | | |
| | | or will work | | | N | umber | | Certified by | | | , Enumerator | nonth and day) | | 1964 |
| _ | 150 days or more at farmwork on (Include any members of your family | this place in 1 | 964? | | None of | workers | | Checked by | | | , Crew leader | nonth and day) | | 1964 |
| L | (include any members of your family | who receive pay | ./ | | | | | | | | , oren reader | A IL S CONTRAMENT PRINTING | FICE : 1944 07-731-744-117 | |



(p. 6 of 6 pp.)

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| PORM | Port I UST OF PLACES IN ED | Part | IIAG | RICULT | | OPERATIONS | x or use | Part I | IIFILLING C | FA1 | regulation. | | | | | ova expan | . April 30 | |
|--|---|--|---|--|--|---|---|---|--|--|------------------------------------|---|---|--|---------------|------------------------------|------------------------|----------------|
| 64-A2 0-1-44 | Instructions: List the head of every household living in this ED. AND ALSO List every person, not living in this ED, who has agricultural operations in this ED. | Instructions: Columns 4 to 6 If "Yest" for any column, skip to column 7. If "No" for all columns 4 to 6, skip to column 15. Did this person or any mem- ber of his household have at any time this year- | | | | | Does per live your | s this rson in ED's? | Does this person have agri- cultural operations where he lives? | A1 number | | Column Column Column | Part IV.—RECORD OF (10 to 13.— Fill as required. 14.— Will be Alled by crew le 15.— Fill after you have answe | OMPLETION OF ENUMERATION Instructions: sder. red all required questions and have filled a | n All if requ | uired. | | |
| | | Doe | a thia | ter | more | Any crops such as | | | IF ''Yes,'' | | | | Collback | | Turned | l over to leader | | |
| Vumber or name of road A2 line number | Name | of nem of house farm | nson any mber his ehold rate a m (or ich)? | 4 or ho 30 or chick 30 or turke du | r more kens? r more kens? r more eys or cks? | corn, hoy? Any vege- tables or berries for sole? Nursery or greenhouse products? 20 or more fruit trees or grape- vines? | if "Y fil colun and Al If "N fil colun | fes," get . No," nn B. | do nor ger A1, but skip to column 13 and enter moil address. fill column 9 and get A1. | If "Yes," in column 7 or "No" in column 8, ossign A1 number. | A1 left {or to b Date due | to be filled e completed) Telephone number | Appointment made (Date and hour of appointment) | Remarks (Mail address, nofes, etc.) | Date | Crew leader's initials | Date com- pleted | A2 line number |
| (1) [2 | (3) | (No | 4) Yes | (i No | 5) Yes | (6) No Yes | (7 No | Yes | (6) No Yes | (9) | (10) | 01) | (12) | (13) | | 14) | (15) | (16) |
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| | \$ | No | Yes | No | Yei | No Yes | No | Yes | No Yes | | | | | | | | | 6 |
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| 10 |) | | Π | | | | | | | | | | | | 1 | 1 | | 10 |
| 11 | | No | Yei | No | Y•• | No Yes | No | Y•• | No Yes | | | | | | | | | 11 |
| 12 | | | | | | | | | | | | | | | | | | 12 |
| 13 | | | | | | | | | | | | | | | | | † | 13 |
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Form A2 - Census Listing

APPENDIX B - FORMS

47

COVERAGE CHECK

| | Budget | Bureau No. 41-6459; | Approval | Expires September 30, 1965 |
|--|--|---------------------|-----------|----------------------------|
| NOTICE - This inquiry is authorized by Act of Congres | s, United States Code, Title 13, Sections 5, 9, | 142, 221, 223, | 1. Rec | ord of calls |
| and 224, requiring that the inquiries be answered completely accorded confidential treatment. The census report cannot be | and accurately, and guaranteeing that the informatio e used for purposes of taxation, investigation, or reg | ulation. | No. | Date |
| РОЯМ 64-4243 (12-9-64) | U.S. DEPARTMEN BUREAL | T OF COMMERCE | 1 | |
| | | | 2 | |
| EPA-1 AGRICU | | | 3 | |
| 1964 CENSUS OF AGRICUL | TURE - EVALUATION PROGRAM | | 4 | |
| | | | 5 | |
| 2. State 3. Cou | Section I - IDENTIFICATION | 4. Segment No. | 6 | 5. EPA-1 No. |
| 6. Location of place (Name of road, route number, etc.) | | FOR OFFICE | | 7. ED No. |
| 8. Name (First name. middle initial, last name) | | L., | | |
| 9. Mailing address (Street or RFD, town or city, State, ZIP c | rode) | 10. Telephone | give excl | Yes No |
| | FOR OFFICE USE ONLY | | | |
| | | κ | Ľ | M |

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Form EPA1 - Basic Coverage Check Questionnaire

(p. 1 of 7 pp.)

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APPENDIX B - FORMS

| | | | Section II - | OPERA | TIONS | | | | Yaş. | | | | 63. IN 1994 (19 | | |
|-------|---|---|-------------------------------------|--|---|---------------------------------------|---------------------------------|--|--|-----------------------------|------------------------------------|-----------------|--|---|--|
| 11 | 11. Continue interview with "person in charge" that is, person listed on page 1. INTERVIEWER: If "Yes" to any question, (a) | | | | | | | | | | | | | | |
| | First, we want to ask about any land in this or any other county in which you (or your wife) had an interest at any time during 1964. (a) Do you own any land now or did you own any land at any time during 1964? | | | | | | | | | | | | | | |
| ł | (We mean in this or any other county) | | | | | | | | | | | | | | |
| 1 | (b) were you working any land on shares for others? | | | | | | | | | | | | | | |
| | (Continue questions at top of opposite page) tion. | | | | | | | | | | | | | | |
| | LAND OWNED, RENTED FROM OTHERS, WORKED ON SHARES, USED OR MANAGED AT ANY TIME DURING 1964 (Complete for "Yes" answers in questions (a) through (i) above and on next page) | | | | | | | | | | | | | | |
| | | | T | [| | | | If | "No" i | n col. | (5a) - | | INTERVIEWER | Did you | rent to |
| | : | | | When di take over begin to on share begin to | d you er (rent, e work es, o use, | Did still (rent on s uze, | you own t, work hares, | Did a else i use o | nyone make f the | Who usin in 1 (Che | will b g this 965? eck on | e land e) | Enter here the acres in this tract still owned, rented, etc., as | others, worked shares, manage by othe | nave on or have d for you rs any of cres (the |
| | What is the name of the owner or landlard)? | | How many | this lon | d? | this | land | after | you | | (5c) | | on December 1, | acres i (6) or d | n column id anv- |
| er | (If owned by respondent or wife, enter ''Seif'' and skip to column (3)) | What did you pay (or are you paying) as rent, or what was the arrangement? | acres are there in the tract? | Was it a January or befor | ifter 1, 1964 e then? 4) | Dec. 1, 19 | ember 964? 5a) | (If '') deten name expla ''Ren | Yes," mine s and in in marks") | | berson () | 1 DOF | to our rules. This will be either zero or the same as (3). If zero, omit remainder of | one els use of these a raise c: for graz 1964? | e make any of cres to rops or ling in |
| dum | | | | After | Jan. 1 | | | | | ain | 1) 1 | Š, | this line and return to lettered | (11 "No | |
| ine r | | | | Give | earlier | Yes | No | | 5b) | 1 28 | ndlo colu | ithe | questions. | акір іо (| 7) |
| 1 | (1) | (2) | (3) | month) | year) | | | Yes | No | ۲ | .e. | Ne. Jar | (6) | Yes | No |
| | | | | | | | | | | | | | | | |
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| Ren | arks | | | | | L | | | | | | | TOTAL | 1.45 | 1 |
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| FOR | M 64.4743 (12-0-84) | | | | | | | | | | | | | <u></u> | an ann an |

Form EPA1 - Basic Coverage Check Questionnaire

(p. 2 of 7 pp.)

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COVERAGE CHECK

| | | | | | Se | ction II - | OPE | RATIC | DNS - | Conti | nued | 10 | . W. W. | all a set and a set of the | | 11' m. 1 | 10 - 1 - 1 1 - 1 - 1 - 1 | | | |
|--|---------------|-----------------|-----------------|------------------------|-------------------------|---------------------|--------------|---------------|----------|-----------|------------|---------------|--|----------------------------|------------------------------|--------------|-----------------------------|----------------|------------|-----------------------|
| We want to make sure that we know about all the land you used at any time in 1964. In addition to the tracts we have already recorded, | | | | | | | | | | | | | | | | | | | | |
| (d) Did you use any pasture or grozing land y | ou haven' | t told us ab | out s | o farî | ? | • • • • • • • • | • • • • | • • • • | • • • • | | Yes | | No [|] | | 5 D. 16 | the s | | :- | ahaaaa |
| (e) Did you cut hay from any land you haven' | t told us o | about so far | ? | ••• | ••• | ••••• | •••• | | •••• | • • • • • | Yes | | No 🗌 |) | answers "Yes | s'' to d' | uest | ion (| h) o | (i) and |
| (t) Did you grow any crops on land you have | ttoid us | about so fa | Jr? . | ••• | ••• | | · · · · | • • • • | • • • • | • • • • • | Yes | | No [| 1 | he also oper | rates 1 | and | ind | ividu | ally on |
| (g) Did you have any woodland or other land | not used t | for crops the | if you | | en't r | nentioned s | o tar? | | | •••• | Yes Voo | | | } | his own acco | unt, fil | l an | addi | tion | IEPA-1 |
| (i) In addition to the tracts to far reported w | | T ONY TIME I | n iyo din r | 4r . | | | | 10442 | •••• | | Vec. | | | 3 | for the man | aged o | r pa | irtne | rsni | acres. |
| LAND OWNED, RENTED FROM OTHERS, WORKED ON SHARES, USED, OR MANAGED AT ANY TIME DURING 1964 - Continued | | | | | | | | | | | | | | | | | | | | |
| | NED, KEP | (| Comp | lete | for e | ach "Yes" | answe | er in q | uestion | ns (a) | throug | h (i) a | bove) | ME DUKING I | 964 - Confinued | | | | | |
| | | | Hove of the sto | w mu the w ck or | ch York | | If eas | rlier | 1 | ''No' | in (1 | 3a) — | | INTER- VIEWER: | (Complete this only after | | De | tem | ine | |
| | How | What did | tra (| rotor ver d | id | When did Mr | than Dece | mber | Did | 01 | WF US | ing th | be is | Enter here the acres | line for each entry) | ļ | li | ftrac is in | | |
| If land was served out | Mr Day as | Mr. | | iisn | take over this land? | 1, 19 ask: | 64, | or an | y- | land | 1 in 19 | 965? | under the | Net acres under | | 5 | egnie | m | If tract | |
| what is the name and | did | rent or | as sha | your ane in | | | Did 1 | | make | USE | | (<u>13c)</u> | . | the person | control of | | \vdash | (17) | | is partly out of |
| address of the renter, (sharecropper, manger, | rent (work | the arrange- | the | ratio | 'n | December 1, 1964 | have | still this | lot the | \$ | | | ÷ | col. (8) on December 1. | December 1, 1964. | Tract No. | | | | segment, determine |
| 010.71 | on | ment for the | of t | this d? | | or later, | land | on | Mr | | | | Mr. | 1964. | Obrain this | | | | | acres in |
| | from | use of | | | | "zeto" | 1, 19 | 64? | up? | 1 | | .g | Do 1 | This entry | entry by sub- | { · | . д | no | off | segment |
| | tract)? | land? | (Ch | eck d | one) | for that | 1 | | | | | aga | 5 | either zero | entries in col. | | ÷. | part | Ę. | |
| | | | | (11) | | person | (1 | <u>3a)</u> | (1 | 3Ь) | | : | 1 | or the same | (14) from the | | let | đ | let | |
| | 1 | | | Ľ | e D | | | | | | Ę | : | ith | in col. (9) | entry in col.(6) | | di la | Ę | đu | |
| (8) | (9) | (10) | 1 | Pa | Ň | (12) | Yes | No | Yes | No | ۶ | Mr | Ž | (14) | (15) | (16) | ŬŬ | ۱ñ. | Ŭ | (18) |
| | | | | | | | | <u> </u> | | | | | - | (14) | | 1.0/- | \square | | | |
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| Remarks | | | | | | | | | | | | | | TOTAL | Acres | | | | | |
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Form EPA1 - Basic Coverage Check Questionnaire (p. 3 of 7 pp.)

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APPENDIX B - FORMS Section III - ASSOCIATED PERSONS 12. All persons associated with this place of acres (column 15, page 3) a. What are the names and addresses of all the landlords and the partners associated with these acres? INTERVIEWER: Check column (1) of Section II. Enter names in column (1) below. b. What are the names and addresses of all persons who worked on this place more than 30 days in 1964? INTERVIEWER: Enter the additional names in column (1). Do not include wife or children under 16 years of age. e. INTERVIEWER: Complete information in all columns for operator and then for each person listed in column (1). What proportion If Mr. . . worked land on this place in 1964, how many acres of land did he work in 1964? What proportion of the livestock tecide what crops on this on this place? ut/2, 1/2, all/2 Does (did) Does (ala) Mr. . . . help to decide when and where to sell livestock from this place? of machine and/or work animals on this place does (dld) Mr.... Where does he live? About how many days did Mr. , , . work on this place in 1964? (Approxi-mately) Relationship Address to operator Name How old number is Mr. . . . ? In a city or town Out in the country own (e.g. 1/2, 1/3, all)? (10) (8) Line Yes No Yes No (4) (6) (7) (9) (11) (1) (3) (2) Operator (persons listed on page 1, item 8) 1 3 4 5 6 7 8 9 . 10 NOTES

FORM 64-A243 (12-9-64)

Form EPA1 - Basic Coverage Check Questionnaire

(p. 4 of 7 pp.)

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COVERAGE CHECK

| Harry Harry | S | ection | 1 - A \$\$ | OCIATED PER | 50NS - Continued 🍒 | t yr i | | 13. (a) Were any sold from th (b) Was the amount of | Section is place in 196 | 1V – INC 4? | OME | INTERVI | EWER: Ask | questions(a) |
|---------------------------------------|---|---|---|---|---|------------------|-----------------|--|---|---|--|--------------------------|--|--|
| | | | | | | | | (c) (If under \$500) What was th (d) (If under \$500) What was y | e amount of the our share of the | soles? soles | 1? | through cultural | (d) for each products li | n of the agri- isted below. |
| | | | | | | | | | | | | | Amount of se | les |
| 1 | | | | | | | | | | | None | More than | If less | than \$500 |
| | | | | | | | | | | | | \$500 | Dollar amount | Respondent's share |
| | | | | | | INTE | R- FP | Cattle and calves | | | | | | |
| | (Check | columns | n receive describir | ? ng method | How would you describe this person? | DECI | SION: | Hogs and pigs | | | | | | |
| | of pays | nent from | this plac | (e) | Λs - | Does | this | Sheep and lambs | | | | | | 1 |
| | | (1 | 2) | | | meet | the 2 | Chickens or other poultry | | | | | | |
| | | | | | 1. Landlord | listed the fo | in ot- | Eggs | | | | | | |
| Cash | Share of crop | Share | | Other | 2. Hired man 3. Partner | notes below | ·?• | Milk or cream | | | | | | |
| rent | or live- stock | profits | wages | (Spiecity) | 4. Cropper 5. Other (Specify) | (1 | 4) | Forest products | | | | | | |
| L | | | | | (13) | Yes | No | Nursery products | | | | | | |
| | | | | | | | | INTERVIEWER: Go next to sec | tion V. | | | | | |
| | | | | | | | | INTERVIEWER: If total has this section. First, list the each crop. | rvested acres e crops harves | in section ted and the | V, colu en compl | mn (4) we: lete colum | ns (3), (4), | 10, complete and (5) for |
| | | | | | | | | What (If any) crops were produced on this place in 1964? | How many acres of were harvested? | What was productic cluding l share, ir | the tota on of andlord's 1964? (3) | l . in- | How much of the 1964 production was or will be sold? | Of the amount sold or to be sold, how much was the respondent's share? |
| <u> </u> | | | | | | | | (1) | (2) | Amount | 1 | Units | (4) | (5) |
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| • Chec | « "Yes" | if both of | the follo | wing criteria are | met; | | | | | | | | | |
| (1) Ma (2) Pa If ''Ye junior | ade decis aid by pro s'' in se partner o | ions ("Ye ofits (in c ction III only and | es" in co olumn (12 ,(14) ma he does | lumn (8) or (10) o 2)) ke sure that you not have any o | r both) a fill an EPA1 in the m perations individually, | ame o , chan | f the ge the | senior partner. If the person in o name on page 1 to the name of | charge for who the senior part | m you have ner and ma | been fi ke all c | lling this orrections | EPA1 turns that may b | s out to be a e necessary. |
| If the | person in | n charge | is a jun | ior partner and | he does operate land i | ndivid | ually | then the EPAI for him must rela | te to his indiv | | | I EXCLUDE I | any parmers | |

Form EPA1 - Basic Coverage Check Questionnaire

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(p. 5 of 7 pp.)

APPENDIX B - FORMS

| | | | 852.763 | 11010 | Section Section | on V - CROP | LAND AND | CROPLAND H | ARVESTE |) | | |
|---------------|---|------------------------|---|--------------------------|--------------------------|--|--------------|----------------------------|---------------|-----------------------|---|--|
| 15. INTE | RVIEWER: | Ask each | question in ti | ım about e | ach tract. | Record the an | swers in th | e appropriate co | olumn in the | table belo | w. | |
| Now w INTE | e want to di RVIEWER: | Describe : | uses made of ! tract (acreage | his land in tenure ar | 1964. Lets rangement, | start with tract location, etc. |) sufficient | ly so that respo | ndent know. | s which one | e you are talking about. | |
| | | | CR | | | | | | | PASTUR | E AND GRAZING LAND | |
| a. Fir | st, how man | y acres of cr | opland are in t | his tract? F | Please do na | ot include lanes, | , field | g. How many | icres were in | n pasture and | grazing land in 1964? INTERVIEWER: Check | |
| roa h Ere | ds, waterwa | ys, etc. (25 | | bowerted is | - 19642 /E | vier answer in c | olumn(A) | that you ha | ve already to | old me about | " (Enteranswer in column (9)). | |
| c. On | how many o | f these acres | was there no | harvest of c | rops becaus | e of crop failure | ? (Enter | h. From how r | nany of these | e acres was | hay cut in 1964, (Enter answer in column (10)) | |
| ana | wer in colu | mn (5)) | | | | | | | | | | |
| d. Hoy in | w many of th 1964? (Ente | ese (f ar answer in | igurê in cel. (3 co <i>lumn (6))</i> |)) acres wer | e used ONL | Y for posture or | grazing | t Haw many | | hours late | bar late lanes woodland roads ditches waste | |
| e. In | 1964, how m | any acres we | are used only f | or soil impro | ovement grad | ses, cover crop | land, etc.? | (Enter ansp | ver in column | | | |
| who | eat programs | Enter and | swer in column | (7)) | | Build, food giot | | | R: The sum | of the entrie | es in columsn (3), (9), and (11) must equal the entry | |
| f. Ho | f. How many acres of cropland were idle in 1964? (Enter answer in column (8)) in column (1). Make this check now. | | | | | | | | | | | |
| INTE | INTERVIEWER: The sum of the entries in column (4), (5), (6), (7), and (8) should equal the entry in column (3). Make this check now. If entry in column (3). Make this check now. | | | | | | | | | | | |
| | | | Croj | land | | | , | Pastur | • | Other land | | |
| Acres | Sketch | Total | Acres from which one | Acres on | Cropland used only | Acres used only for soil | Acres of | pasture of | Acres from | Major crops harvested | | |
| in tract | tract | in | of more crops were | crops failed | for past- ure or | grasses (include soil | cropland | (not including cropland | was cut | lanes, woodland. | | |
| (1) | (7) | (3) | harvested | (5) | grazing | bank, etc.) | (8) | pasture) | (10) | etc.) | (12) | |
| (1) | (2) | | | | | | | | | <u> </u> | | |
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| TOTAL | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | TOTAL | | | Te la construction de la constru | 0 | • | | | | |
| | | | | compl | ete item 14 | , section IV. | io acres, | | | | | |
| | Ph Inter 2. C. and Physics | AMP. All Call Michael | | | | | | | | | | |

Form EPA1 - Basic Coverage Check Questionnaire (p. 6 of 7 pp.)

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| Section YI - LOCATION OF PLACE - December 1, 1964 | REMARKS |
|---|---------|
| 16. INTERVIEWER: Check if person lived in or out of the segment and determine if "person in charge" lived anywhere on the place (as defined by total net acres in column (15), section II) on December 1, 1964. | |
| Lived in the segment | |
| Lived on any part of the place | · |
| Did not live on any part of the place | |
| Did not live in the segment | |
| Lived on any part of the place | |
| Did not live on any part of the place | |
| | |
| northwest comer of the place located in? | |
| Section YII | |
| 18. Social security number of head of household or person in charge | |
| Type of respondent | |
| Operator | |
| Operator's wite | |
| Uther (Explain) | |
| | · · |
| 19. Was a Census questionnaire (show conv.) filled for this place? | |
| Yes - In whose name was it filled? | |
| | |
| Name | |
| Address (If not already reported) | |
| | |
| | |
| Don't know of not sure (List the names and addresses of all persons | |
| in whose name the questionnaire may have been filled) | |
| | |
| | |
| | |
| | |
| | |
| | 4 |
| 20. Are there any names in section III, column (1) or in section II, column (8), other than the OPERATOR of this place? Yes No | |
| (If "Yes," enter names in part II, column (b) of the EPA 2) | |
| Enumerator's name Date | 1 |
| | |
| · · · · · · · · · · · · · · · · · · · | |
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Form EPA1 - Basic Coverage Check Questionnaire (p. 7 of 7 pp.)

| accurately, and guaranteeing that the information furnished be accorded confidential treatment. The census report cannot be used for purposes of taxation, investigation, or regulation. | | | | | | | | | | | | | | Page_ | Page Of Pi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|--|------------|------------|---|---|--|--------|---|--------|--|------|--|------------|--|----------|--|---|--|----------|---|---|--|---|----------|--------------|-----------|-------|---------|----|----------|---|------------------------|-----|---|----|--------------------------|----|----|---|---|-----|-----|-------------|-----|----------|--|----|
| (12-7-64 | 227-64) US DEFRIMENT OF COMMENCES BUREAU OF THE CENSUS | | | | | | | | | | | | | | State | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | EPA 2 LISTING FORM | | | | | | | | | | | | | | | County Segment number | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 17 | 04 CE | .11303 | | AGRIC | .0111 | UKE - | - = */ | ALUA | TION | PRU | GKAI | n | | | | | | | oegmen | ocgment number | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | PAR | r i | | | | | | | | | | L | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Line No. (b) | Name of person or firm (Include all household members 16 years of age and over (1) for families living in the segment, and (2) for persons having control of land in the segment) (c) | Relationship to head of household (d) | Age (e) | Sex (f) | Ask all questions for persons 16 or more years of age | | | | | | | | | | | | | | Fill this section for each head of a household o person or firm having control of land in segment | | | old or | · oth | | | | | | | | | | | | | | | | | | | | | | | | | |
| Case No. (a) | | | | | | At a | At any time during 1964 did have here or anywhere else- | | | | | | | | | | | | EPA 1 required, complete E then fill this section. | | | PA 1 Questionnaire and | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | r— | | | | | | | | Any | | 1 | | Determine | | If "Yes" in | and the section. | 1 | | | T | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | Any hogs, cattle, sheep, goats, or other | | Any crops such as corn, oats, tobacco, | | Any hay cut or land used for posture or | | A com- bined total of 30 or more chickens, | | 20 or more fruit trees or grape- vines? | | vegetables or berries for sale? Mush- rooms? | | Any income from sale of agricul- tural products? | | if this person is a "person in charge" | | column (n), enter EPA 1 number and fill EPA 1 questionnaire | What was the primary use of this land? (Farming, homestead, soil bank, woodland, idle land ots. | How many acres in seg- ment? | Does "person in charge" live in or out of | | Trac | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | livestock | tock? | ? etc.? | | grazing? | | turkeys, and ducks? | | 7 | | Nursery or greenhouse | | | | | | | rend, erc.) | | segment? | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | e) | , I | h) | (i) | | | (j) | | k) | prod | l) | (= |) | (| (n) | (0) | (0) | (9) | (r) | | (s |
| | | | | | | Yes | No Y | Y | fes No | Yes | 'es No | Yes | ,No | Yes | N٥ | Yes | No | Yes | No | Yes | No | | | | In | Out | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | Yes | Nº. | Yes | No | Yes | No | Yes | No | Yes | No | Yos | No | Yes | No | Yes | No. | | | | In | Out | Γ | | | | | | | | | | | | | | | | | | | | | | |
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APPENDIX B - FORMS

56 FORM 64-4244 U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS _Pages Page_ oſ State EPA 2 LISTING FORM - Continued County 1964 CENSUS OF AGRICULTURE - EVALUATION PROGRAM Segment number PART II Ask all questions (f) through (l) - Fill (m) and (n) At any time during 1964, did . . . have here or anywhere else-List of other persons associated with the places listed in part I (Landlords, tenants, partners, etc.) Determine If "Yes" in column Any if this Associate EPA 1 No. of No.'s (Places lise & in part 1) (m), enter EPA 1 vegetables Line No. person is Age Sex Any hogs, Any crops, Any hay A combined 20 or more Any income number and fill (List on other side of this form also, if person is a member of a household in the segment or operates land in the segment) or berries a "person in charge" from sale cattle, such as cut or land total of fruit trees EPA 1 questionnaire for sale? sheep, corn, oats, used for 30 or more or grapeof agricultural Mushrooms? goats, or other tobacco, posture or chickens, vines? orazing? turkeys, etc.? products? Nursery or livestock? and ducks? greenhouse products? (i) (j) (k) (I) (m) (n) (a) (b) (d) (e) (f) (g) (h) (ç) Form EPA2 -. Yes Yes No Yes No Yes No Yes No No Yes Yes No Yes No No (p. 2 of 2 pp.) Yes Yes No Yes Yes No Yes No Yes No Yes N٥ Yes No No No Yes No Yes No Yes No Yes No Yes No No Yes No Yes No Yes Yes Yes No Yes No Yes No Yes No Yes No Yes No Yes No No

COVERAGE CHECK