

## Screening for Agriculture Activity

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### 1. ABSTRACT

Questions that screen for agricultural activity are used to reduce response burden and retain addressees with a high probability of having a farm operation. Four tests of screening questions were conducted prior to and during the 1987 Census of Agriculture providing information for evaluating the accuracy of such questions for identifying farm operations. An optical mark reader (OMR) categorical short form with a nine part screening question was tested in the 1985 Census of Agriculture Test to compare response with the census form for nonrespondents. A single page form containing a single agricultural screening question was tested in 1986 to reduce overall response burden for the census. A modification of this screener consisting of a two part agricultural activity screening question was used for the 1987 Census of Agriculture short form. Finally, a single question screening for agricultural activity was tested in the 1986 Decennial National Content Test to determine if data from this question would improve census of agriculture coverage. This paper discusses the accuracy of farm status classification for these four studies.

### 2. OVERVIEW

#### 2.1 Relevance of Screening for Agricultural Activity to the Census of Agriculture Program

One of the most difficult aspects of conducting a census of agriculture is accurately identifying operations that qualify as farms and including those operations in the census. A census farm is any place from which \$1,000 or more of agricultural products were sold or normally would have been sold during the census year. Identification of these operations is complicated because data for the census of agriculture are collected by mail. A list with accurate address information and good coverage of the farm universe is necessary to achieve a complete and accurate enumeration of farms using mail data collection.

The Agriculture Division of the Census Bureau does not have an ongoing program for updating the census of agriculture list frame between quinquennial censuses. No other current comprehensive national list of agricultural operations exists to use for this frame. Thus, the mail list has to be recreated for each census using several large lists of statistical and administrative records with some association with agriculture. The Agriculture Division matches and links records from these sources to identify and remove duplicate records.

In the 1978 and 1982 censuses, a Farm and Ranch Identification Survey was conducted prior to the census using an abbreviated form designed to identify mail list records not qualifying as

farms as well as duplicate records. A similar survey to screen for agricultural activity was not conducted for the 1987 census because of respondent burden and budget constraints. Burden constraints on the resulting larger mail list, however, necessitated the investigation of alternative procedures to reduce that burden. The Agriculture Division proposed to accomplish this objective by using a classification model to identify and remove records less likely to represent farm operations and mailing a short census report form to list records least likely to represent farms. The intent of this form was to screen for the presence of agricultural activities so respondents not associated with agriculture are not required to complete the remainder of the form.

#### 2.2 Issues in Screening for Agriculture

Cognitive issues that affect the respondent's ability to accurately complete a form have recently received attention in survey methodology literature. Some relevant factors are the wording and order of questions, the color and physical layout of the report form, the targeted response audience and the purpose of the screener. These factors were applied to design the agricultural screening question.

The audience plays a major role in the design of a screener. The wording of the question should reflect the respondent's expected knowledge. To design an agricultural screener the audience needs to be specified as either primarily farm or nonfarm. The census mail list contains about 50 percent nonfarm addresses. These nonfarm records may represent landowners, nonmanaging partners, owners but not operators, nonproduction agricultural operations (such as farm suppliers, feed mill operators, processors, custom operators), agricultural hobbyists, dissolved operations (deceased operators or sold operations), home gardens, etc. The screener needs to be written so that all potential farm operators complete the form.

The purpose of the screener is an important factor in its' design. Possible purposes for using a screener may be to reduce response burden, to increase census coverage, to develop the census mail list, or to increase response rates. Screeners to reduce response burden are used when the mail list is expected to include nonfarmers. A well written screener should allow respondents who clearly are not farm operators to complete the form by responding to a series of simple questions.

The wording and the format of the screener are critical in obtaining accurate response. The ability of the target audience to understand the wording and concepts in the screener is crucial to correct response and, hence, correct classification of farm status. Since the screener is the first section on the questionnaire, wording of the screener can influence the respondent's decision to cooperate. The format of the screener--single versus multiple questions, list versus

paragraph, boxes for response, skip patterns, readability, and layout--directly affects the respondent's ability and willingness to provide accurate information.

Consideration should be given to the adequacy of the agricultural commodity detail for eliciting accurate responses. The respondent's ability to accurately answer the screening question depends on cues provided in the question. Lists of agricultural commodities inclusive of most types of farm operations provide such cues.

### 2.3 Design of Screener Tests

In each of the four studies discussed in this paper, a questionnaire containing the screener was mailed to a sample of addresses from the census of agriculture mail list (except in the 1986 National Content Test where the questionnaires were mailed to a national sample of 12,690 households). The addresses were classified as census farms or nonfarms based on the responses to the screener and data provided on the form. For each study, a subsample of the original sample was selected for reinterview either by telephone, mail, or personal contact. During the followup contact, a more detailed set of questions was asked and the operations were independently classified as farm or nonfarm based on the reinterview data alone. The reinterview classification was considered the "true" status for the address.

This paper describes the effectiveness of the screener for each of these studies. The effectiveness of each screener was measured by evaluating the accuracy of farm status classification. The accuracy of farm status classification is evaluated by looking at the percentage or number of records that were incorrectly classified. These cases are important because they represent the potential for undercount and overcount of farms.

In the discussion of each study the sample cases that satisfy the census farm definition are referred to as inscope (I/S) records or farms while those that do not satisfy the definition are termed out-of-scope (O/S) records or nonfarms. A false I/S record is a nonfarm incorrectly classified as a farm--a record classified as I/S from data on the mailed form but classified as O/S from data given in reinterview. A false O/S record is a farm incorrectly classified as a nonfarm--a record classified as O/S from the data on the mailed form but classified as I/S from data given in the reinterview. Of greatest concern are the false O/S cases with a 'no' response to the screener because respondents with agricultural activity are instructed to not complete the remainder of the form. Because no data is provided by a farm operator, no further evaluation of farm status can be made.

As previously mentioned, an operation satisfies the farm definition if \$1,000 or more of agricultural products were sold or normally would have been sold during the census year. If less than \$1,000 in agricultural product sales was reported, possible sales were calculated by a point system (as is used in the census). Each agricultural commodity is assigned a point value. Point totals are accumulated based on

the reported data on the form. A record with more than 1,000 points is classified as I/S and termed a point farm.

## 3. Optical Mark Reader Short Form

### 3.1 Design

In the 1985 Census of Agriculture Test the optical mark reader (OMR) form was sent to nonrespondents to the test mailing. The sample universe for the 1985 Census of Agriculture Test was 1982 I/S cases with total value of agriculture products sold (TVP) less than \$500,000, 1982 I/S cases with unknown size (mail size 13), and 1982 nonrespondents that were also mail size 13. All nonrespondents to the card/letter followup test mailing with mail size 13 or TVP less than \$10,000 became the sample for the OMR form test. These cases had been contacted at least three times during the test and had not responded. A sample of 4,452 cases were selected and mailed the OMR form.

The OMR form was designed to produce higher response among those cases that are traditionally harder to enumerate. The first section on the form was a series of land use questions to determine the amount of land the respondent owned, rented from others, or rented to others. The screener, consisting of nine questions to determine the presence or absence of specific agricultural activities, followed the land use section. If a respondent answered 'no' to all nine questions, the respondent was instructed to skip to the last section of the form and provide his/her name. A 'yes' response to any of the questions required completion of all sections of the questionnaire.

Figure 1. OMR form screener

SECTION 2 Agricultural Activity in 1985		Yes	No
At any time during 1985 did you have or produce on THIS PLACE any -			
a. Corn (field), sorghum, small grains, hay, soybeans?		<input type="radio"/>	<input type="radio"/>
b. Cotton, peanuts, potatoes, or sugar crops?		<input type="radio"/>	<input type="radio"/>
c. Tobacco?		<input type="radio"/>	<input type="radio"/>
d. Vegetables for sale, including sweet corn, melons, etc.?		<input type="radio"/>	<input type="radio"/>
e. Fruit trees (including citrus), nut trees, grapes, or any berries for sale?		<input type="radio"/>	<input type="radio"/>
f. Nursery products, greenhouse products, or sod grown for sale?		<input type="radio"/>	<input type="radio"/>
g. Other crops?		<input type="radio"/>	<input type="radio"/>
h. Livestock, poultry, or their products?		<input type="radio"/>	<input type="radio"/>
i. Other livestock or agricultural products - horses, goats, fur-bearing animals, fish in captivity, bees, honey, other animal specialties, etc.?		<input type="radio"/>	<input type="radio"/>
PLEASE READ	If you answered 'NO' to ALL of the above questions, SKIP TO SECTION 8 on the reverse side. If you answered 'YES' to ANY of the above questions, CONTINUE WITH SECTION 3 on the reverse side.		

### 3.2 Accuracy of Farm Status Classification

To evaluate the accuracy of farm classification of the OMR form, a telephone reinterview of a sample of OMR form recipients was conducted. Budgetary and timing constraints dictated a maximum sample size of 600 cases. Of the 600 cases, 575 were selected from respondents who had not indicated a nonfarm status in section 8 on the OMR form. In addition, 25 cases that had indicated a nonfarm status were included in the sample. Of the 575 cases, 267 were mail size 13 respondents and 308 were selected randomly from respondents with less than \$10,000 TVP. Reinterviews were completed for 580 of the 600 cases selected. Of the completed reinterview cases, 481 had a 'yes' response to at least one of the screening questions on the mailed form and the remaining

99 had a 'no' response to all of the screening questions. The farm status assigned to the respondent from the mailed OMR form data was compared to the status assigned by the reinterview. (See Table 1a.)

Table 1a. OMR FORM CLASSIFICATION

REINTERVIEW	OMR FORM STATUS		
	I/S	O/S	TOTAL
I/S	445	36	481
O/S	17	82	99
TOTAL	462	118	580

Based on the reinterview, incorrect farm status was assigned to 53 out of the 580 completed reinterview cases (9.1 percent). Of the 53 incorrectly classified cases, 36 were false O/Ss and 17 were false I/Ss. Since O/S cases are not considered to be farms, they are not included in the census. Therefore, false O/Ss are of the most concern because they represent farms that would be missed in the census. Of the 118 cases in the reinterview sample that were classified as OMR form O/S, 36 (30.5 percent) were false O/S cases. (See Table 1b.) Of these 36 false O/S cases, 17 responded 'yes' to at least one of the nine screening questions and provided data on the OMR form. The false O/S status for these 17 cases is not due to the screener but to the reporting of data on the OMR form. The other 19 false O/S cases responded 'no' to all nine screening questions. These 19 cases represent a 16.1 percent classification error rate among the 118 mailed form O/S cases in the reinterview sample.

Table 1b. OMR INCORRECT CLASSIFICATION

CLASSIFICATION	SCREENER RESPONSE		
	YES	NO	TOTAL
FALSE O/S	17	19	36
FALSE I/S	15	2	17
TOTAL	32	21	53

The inaccurate farm status assignments for 'yes' responses to the screener (false I/S and false O/S) may be due to the point accumulation process used for the test. On the OMR form, ranges were given for the agricultural commodities. The edit system for the OMR form used the midpoint of the range multiplied by the point values for the agriculture commodity for accumulating point totals. For example, the ranges for hens were 1) none; 2) 1-99; 3) 100-199; or 4) 200 or more. A respondent with 95 hens would fall in the 1-99 range. When point totals for the record are accumulated, the midpoint of the range, 50 hens, is used for calculations. But in the reinterview all 95 hens would be used for calculations. This would result in a discrepancy in the point total for the reinterview and possibly a different farm status assignment.

#### 4. 1986 Short Form Test

##### 4.1 Design

The single page noncategorical short form was developed prior to the 1987 census because the OMR form did not adequately fulfill two of its

objectives; that is, the read and farm classification error rates were too high to warrant the equipment purchase. In lieu of an OMR form, the Agriculture Division opted for a survey instrument that requested somewhat less data than the regular census form but provided adequate detail to impute all the data items on the regular census report forms. This was not possible with the categorical form. A screener was used on the short form to reduce respondent burden for nonfarmers.

The sample universe for the short form test was the 1982 I/S file. Four strata were formed from cases with TVP less than \$40,000 and point farms. A systematic random sample of 1,500 cases was selected from each of the four strata. From each stratum, a subsample was then chosen. All cases with vegetables, fruit, and horticulture were selected with certainty. The remaining cases were selected at a rate of 1 in 2. After deleting cases from Hawaii and Alaska, there were 3,136 mailout sample cases.

The screener was a single yes/no question with a paragraph form agricultural commodity list. Respondents answering 'no' to the screener were asked a followup question to validate the respondents nonfarm status and were then instructed to skip to the last section of the form to provide his/her name. Respondents answering 'yes' response to the screener skipped the followup question but were requested to complete the remainder of the form.

Figure 2. 1986 Short Form Test Screener

**SECTION 1**

1. During 1986, did you grow any crops or have any livestock or poultry or other agricultural products for home use or for sale? Examples: grains, hay, nursery and greenhouse crops, fruit, vegetables, cattle, hogs, sheep, poultry, goats, horses, bees, fur-bearing animals, fish in captivity, and other animal specialties. (Do not include crops or livestock on land rented to others.)

YES - Please skip to section 2       NO - Go to item 2

2. Mark (X) the item(s) below that describes the addressee's relationship to agriculture and skip to section 10.

Landlord only - rented land to others and had no separate crop or livestock operation.       Never operated a farm or ranch.

No longer operating - Sold farm or ranch or quit farming.       Deceased.

Land idle and not used for agriculture production in 1986.       Other - Specify

##### 4.2 Accuracy of Farm Status Classification

The reinterview sample was chosen from the total receipts as of January 7, 1987. As of that date, 1,587 forms had been received; 1,128 with 'yes' responses to the screener and 459 with 'no' responses (a blank response was considered a 'no' response). A stratified sample was chosen based on vegetable, fruit, and horticulture cases and the response given to the screener question. All cases with vegetables and horticulture were selected with certainty. Those cases with fruit were subsampled within each stratum at a rate of 1-in-2. The remaining cases in each stratum were subsampled at varying rates. The sample selection resulted in a telephone reinterview sample of 590 cases. Reinterviews were completed for 533 of the 590 cases selected. Farm status (farm or nonfarm) was assigned based on the reinterview data. The farm status assigned from the short form data was compared to the status assigned by the reinterview. (See Table 2a.)

Table 2a. 1986 SHORT FORM CLASSIFICATION

REINTERVIEW	SHORT FORM STATUS		
	I/S	O/S	TOTAL
I/S	242	34	276
O/S	22	235	257
TOTAL	264	269	533

Based on the 533 completed reinterviews, incorrect farm status was assigned to 56 of the cases (10.5 percent). Of the 56 incorrectly classified cases, 34 were false O/Ss and 22 were false I/Ss. Thirty-two of the false O/S cases responded with a 'no' to the screener question and the remaining two had 'yes' responses. (Table 2b.) The 32 'no' false O/S cases amount to an 11.9 percent classification error rate among the 269 mailed form O/S cases in the reinterview sample. Six of the 32 'no' false O/S cases, however, completed the questionnaire without regard to the skip instructions but the reported data did not justify classification of them as farms.

Table 2b. 1986 SHORT FORM INCORRECT CLASSIFICATION

CLASSIFICATION	SCREENER RESPONSE		TOTAL
	YES	NO	
FALSE O/S	2	32	34
FALSE I/S	13	9	22
TOTAL	15	41	56

4.3 Question Design Implications

Although the intent of the test screeners was to reduce response burden, the screener used in the 1986 Short Form Test did not effectively achieve this objective. Of the respondents who said 'no' to the screener in the mailing, 40 percent gave additional data on the form. There are several possible explanations for this phenomenon. The design of the screener may be a contributing factor. The skip instructions may not have been clearly written or understood by the respondent. The items listed as examples of agriculture commodities may not have been inclusive of all types of farmers. Therefore, after a 'no' response to the screener, the respondent may have read over the form and realized that questions pertained to their situation. The respondent may not have read or followed instructions. The 'no' box could have been improperly checked when a 'yes' response was intended. Finally, it is possible that once a person decides to comply with a data request, the respondent completes the form without regard to the instructions (skip patterns, etc.).

The 1986 Short Form Test indicated that respondents with hay and cattle did not consider these agricultural production commodities. Of the 32 false O/Ss with 'no' responses, the reinterview revealed that 15 had hay and 14 had cattle (there is overlap). The screener question had hay listed as the second commodity in a list of 15 while cattle was the sixth. The Agriculture Division redesigned the screener to address this reporting problem by listing cattle and hay as the first items in each of the respective screener questions for these commodities. (See Figure 3 for the actual screener used in the 1987 census.)

5. 1987 Census of Agriculture Short Form

5.1 Design

The design of the 1987 Census of Agriculture short form was based on results from the 1986 Test. The universe for the short form was the 1,395,804 cases in the "short form eligibles file." Records were assigned a model group and sorted according to ascending probability of being a farm. The 906,406 records in model groups with the lowest probability received the short form. The remaining addresses received the regular census report form. Of the total short forms returned, 27.5 percent were I/S based on the reported data.

The 1986 test screener was modified for use on the 1987 short form. The 1987 screener consisted of two questions listing types of crops and livestock inclusive of major agricultural production but also identifying commodities often not associated with agriculture operations by the respondent. A 'no' response to both of the questions allowed the respondent to skip to the end of the form. A 'yes' response to either of the questions required completion of all sections of the form.

Figure 3. 1987 Census Short Form Screener

**SECTION 1**

1. At any time during 1987, did you plant, grow, or have any:

- Hay or tobacco?                      • Fruit, nut, or citrus trees; grapevines?
- Corn, wheat, or other grains?       • Vegetables, melons, or berries?
- Other crops?                           • Greenhouse or nursery crops?

Yes                       No

2. At any time during 1987, did you raise, sell, or keep any:

- Cattle, hogs, sheep, or goats?      • Horses or ponies?
- Chickens or other poultry?          • Fish in captivity?
- Bees?                                    • Other animal specialties?

Yes                       No

*If you answered YES to EITHER of these questions, go to SECTION 2.  
If you answered NO to BOTH of these questions, go to SECTION 10.*

5.2 Accuracy of Farm Status Classification

The short form sample cases in the Classification Error Survey (CES) constituted the reinterview sample for evaluating the accuracy of farm classification of the short form. An independent regionally stratified systematic random sample was selected from the 1987 census mail list of 4.1 million records. A total of 18,200 names were selected at varying rates across regions; a total of 4,453 of these cases received the short form in the census. Of the 4,453 mailed forms, 3,442 were returned and could be classified as I/S or O/S. The farm status assigned from the census data was compared to that assigned by the reinterview. (See Table 3a.)

Table 3a. 1987 SHORT FORM CLASSIFICATION

REINTERVIEW	SHORT FORM STATUS		
	I/S	O/S	TOTAL
I/S	976	69	1045
O/S	53	235	2397
TOTAL	1029	2413	3442

Based on the 3,442 completed reinterviews, incorrect farm status was assigned to 122 of the cases (3.5 percent). Of the 122 incorrectly

classified cases, 69 were false O/S and 53 were false I/S. Of the 69 false O/S cases, 30 responded 'no' to both screener questions, 30 had a 'yes' response to at least one of the screener questions, and 9 cases could not be classified because the census forms could not be found. (See Table 3b.) The 30 false O/S cases responding 'no' represent a 1.2 percent classification error rate among the 2,413 mailed short form O/S cases in the reinterview sample. The false O/S status of the 30 cases responding 'yes' to at least one of the screener questions is due to the data reported on the form.

Table 3b.  
1987 SHORT FORM INCORRECT CLASSIFICATION

CLASSIFICATION	SCREENER RESPONSE		
	YES	NO	TOTAL
FALSE O/S	30	30	60
FALSE I/S	43	10	53
TOTALS	73	40	113

6. 1986 National Content Test

6.1 Design

The agricultural questions included on the 1986 National Content Test for the decennial census were intended to determine whether any household (HH) member of the addresses in the test qualified as a census farm operator. The purpose was to determine whether mail list coverage could be improved for the 1992 Census of Agriculture by asking a modified agricultural screening question on the 1990 decennial census form. The farm operators responding in the decennial census would be matched to farm operators from other sources to yield a more accurate list of farm addresses to mail the 1992 agriculture census questionnaire. The decennial forms were mailed to a national sample of 12,690 households (HHs) using five panels. The historical decennial sample agriculture sales question on the decennial questionnaire was preceded by one of the following three screeners: a) a 1980 decennial census screener (Figure 4a.) which identified HHs living in built-up areas (city or suburban lots) or on places of less than 1 acre, HHs on 1-9 acres, and HHs on 10 or more acres; b) a modified 1980 decennial census screener (Figure 4b.) which identified HHs in built-up areas; and c) the agricultural census screener (Figure 4c.) which identified HHs in which a member is involved in specified types of agricultural activities.

Figure 4a. 1980 Screener

**H15a. Is this building -**

1  On a city or suburban lot, or on a place of less than 1 acre? - Skip to H16

2  On a place of 1 to 9 acres?

3  On a place of 10 or more acres?

Figure 4b. Modified 1980 Screener

**H16a. Is this building on a city or suburban lot, or on a place of less than 1 acre?**

1  Yes - Skip to H17

2  No

Figure 4c. Agricultural Census Screener

**H16a. In 1985, did anyone in this household grow crops, raise livestock, or have other agricultural products with a combined worth of at least \$1,000? Consider all agricultural products from this property and from other land. Include, for example, poultry, horses, animal products, hay, nursery or greenhouse products, vegetables, fruits, and berries. Do not include produce grown for home use.**

1  Yes

2  No - Skip to H17

The screeners for agriculture activity were not the first questions on the form. A respondent answering 'no' to the screener only skipped the agriculture sales question following the screener. The form with the 1980 screener was mailed to 2,567 HHs, the modified 1980 screener to 2,488 HHs, and the agricultural census screener to 7,635 HHs.

6.2 Accuracy of Farm Status Classification

Personal reinterviews were conducted for approximately 40 percent of the mail returns. Reinterview data to determine farm status classification was only available for the forms containing the agricultural census screener. A detailed sequence of questions requesting actual data on farm commodities was asked and farm status was assigned for the reinterview. Note that farm status on the mailed decennial form was based solely on response to the combined screener and agricultural sales question, where those responding affirmatively to the screener and having agriculture sales greater than \$1,000 were classified as farms. The farm status was compared for the mail and reinterview data collections. The table below displays the results of the comparison for the panels containing the agricultural census screener.

Table 4a. NCT FORM CLASSIFICATION

REINTERVIEW	SHORT FORM STATUS		
	I/S	O/S	TOTAL
I/S	44	61	105
O/S	11	2673	2684
TOTAL	55	2734	2789

Based on the 2,789 reinterviews, incorrect farm status was assigned to 72 cases (2.6 percent). Of the 72 incorrectly classified cases, 61 were false O/Ss and 11 were false I/Ss (See Table 4b.) Of the 61 false O/Ss, 43 responded 'no' to the screener and 18 responded

'yes'. The 43 false O/S cases responding 'no', amount to a 1.6 percent classification error rate among the 2,734 mailed form O/S cases in the reinterview sample.

## 8. Further Research

A test planned for the 1992 Census of Agriculture for calendar year 1989 will have screener evaluation as one of its' objectives. Three test panels will be allocated for this purpose. The screener on the 1987 Census of Agriculture short form will be used as the control panel to compare farm classification accuracy with a form containing no screener and a form with a new screener designed for the test. In addition, response rates will be analyzed making comparisons between a short form without a screener, the control form, and the form with a new screener. The mailout will be in January, 1990 and the analysis is scheduled for completion in August, 1990. The sample universe for the screener analysis will include farm, nonfarm, and nonrespondent addresses from the 1987 Census of Agriculture mail list. The new screener designed for the 1990 test will incorporate results from the studies discussed in this paper.

Table 4b. NCT FORM INCORRECT CLASSIFICATION

CLASSIFICATION	SCREENER RESPONSE		
	YES	NO	TOTAL
FALSE O/S	18	43	61
FALSE I/S	8	3	11
TOTALS	26	46	72

## 7. Comparison of Agriculture Screeners

The results of the studies presented in this paper should not be directly compared because of the differing sample universes and sample selection criteria. The intention of the paper was to describe each study and its' results to aid in further screener development.

Farm status classification was evaluated for each of the four studies. Although the results are presented together, the authors do not intend to conclude that one of the screeners is "best" at accurately classifying farm status. Each screener was tested for different objectives and under different circumstances, and results are not easily generalized. From the results of the three tests where the samples were drawn from the census mail list (see Table 5), it appears the screener for the 1987 short form is best at accurately classifying records as farm or nonfarm due to the low percentages in the table. This is what the Agriculture division strived for with each new version of the screener.

Table 5.  
COMPARISON OF INCORRECT CLASSIFICATION

	Percent Incorrectly Classified	% False O/S with 'no' to Screener
1. OMR	9.1	16.1
2. 1986 TEST	10.5	11.9
3. 1987 CENSUS	3.5	1.2

The incorrectly classified percentage for the decennial screener is 2.6 and the false O/S with 'no' responses to the screener is 1.6. The tendency might be to conclude that the decennial screener is best at accurately classifying records as farm or nonfarm. However, the low percentage for the decennial agricultural census screener could be the result of a different mail universe. The samples for the OMR test, the 1986 Test and the 1987 Census Short Form were drawn from a universe of addresses that had some association with agriculture. The sample for the National Content Test was selected from the decennial universe which has only 2.5 percent of the decennial audience associated with agriculture. Thus, the reinterview sample for the decennial test contained an unbalanced number of mailed form O/S and I/S cases (2,734 and 55 respectively). The large number of O/S cases with no expected association with agriculture may be a contributing factor in the denominator of the decennial percentages.

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