

Appendix C.

Statistical Methodology

MAIL LIST MODEL

Classification analysis was performed to predict the probability that an addressee on the 1992 mail list operated a farm, and thereby separated the preliminary mail list into probable farm and probable nonfarm classes. The analysis was used to reduce the preliminary census mail list of 3.78 million records to a final mail list size of 3.55 million records. All 3.55 million addresses on the final mail list received a census of agriculture report form.

Records from the 1987 final census mail list were used to build a 1992 prediction model for the 1992 analysis. Classification and Regression Trees (CART) software analyzed characteristics of known 1987 farm and nonfarm operations to determine which were most useful in predicting farm and nonfarm classes. Record characteristics such as the source of the mail list record, number of source lists on which the record appeared, expected value of agricultural sales, and geographic location were used to separate mail list records into model groups. (Sources included the previous agriculture census mail list, the Internal Revenue Service administrative records, U.S. Department of Agriculture, and special commodity lists.) The proportion of 1987 census farm records in each model group was calculated to provide an estimate of the probability that an addressee in the group operated a farm.

After the model groups were defined, each address record on the 1992 preliminary mail list was assigned to a model group by matching record characteristics to model group characteristics. Records belonging to the groups with the highest farm probability were those more likely to be farms according to the classification tree methodology. The model, followed by analyst reviews, was used to remove 229,700 records from the preliminary mail list (those in model groups with the lowest farm probability), and thereby designated the 3.55 million records with the highest farm probability to receive the census report form. This procedure was used to obtain a more complete census enumeration of farm operations without excessive respondent burden and data collection cost.

CENSUS SAMPLE DESIGN

Each of the 3.55 million name and address records on the census mail list was designated to receive one of three different types of census report forms. The three forms were the nonsample form, the screener form, and the

sample form. Sections 1 through 20 and 27 through 32 of the sample form are identical to sections on the nonsample form. The sample form, sections 21 through 26, contains additional questions on usage of fertilizers and chemicals, farm production expenditures, value of machinery and equipment, value of land and buildings, and farm-related income. The screener form is identical to the nonsample form with questions added in section 1 to allow quick identification of nonfarm addresses. These three different forms were used to reduce the response burden of the census, while providing reliable information on a large number of data items.

The sample form was mailed to all mail list records in Alaska, Hawaii, and Rhode Island, and to a sample of records in other States selected from the final mail list. Addresses were selected into the sample with certainty (1) if they were expected to have large total value of agricultural products sold or large acreage, (2) if they were multiunit operations (i.e., separate farms in more than one location), (3) if they had other special characteristics, or (4) if they were in a county with less than 100 farms in 1987. Other addresses in counties containing 100 to 199 farms in 1987 were systematically sampled at a rate of 1 in 2, and other addresses in counties containing 200 farms or more in 1987 were systematically sampled at a rate of 1 in 6. This differential sampling scheme was used to provide reliable data for the sample sections of the report form for all counties. When a nonsample large farm was identified during processing, a supplemental form that contained the additional sample data inquiries was mailed.

To determine which mail list records would receive the screener form, all mail list records not designated for the sample were sorted by model group farm probability as specified by the mail list model. The 412,000 mail list records in the model groups with the lowest probability of being farms and with an expected total value of agricultural product sales less than \$25,000 were designated to receive the screener report form. The remaining mail list records received the nonsample report form.

CENSUS ESTIMATION

The 1992 Census of Agriculture used two types of statistical estimation procedures. These estimation procedures accounted for nonresponse to the data collection and for the sample data collection. These procedures are necessary because some farm operators never respond to

the census despite numerous attempts to contact them, and the estimates for the sample data are based on a sample of farm operators rather than a full enumeration.

Whole Farm Nonresponse Estimation

A statistical estimation procedure was used to account for nonrespondent farm operators to the census. We excluded large and unique farm operations that received intensive telephone followup during census processing, assuming complete response from them. A stratified systematic sample of remaining census nonrespondents were contacted by enumerators using a computer-assisted telephone interview system. Five sample strata were defined based on expected value of sales, previous census status, and whether the record was identified by the mail list model to receive the screener report form. The nonresponse survey telephone interview was designed to provide sufficient information to determine the farm status of each record.

In situations where the nonresponse survey case could not be contacted, the contact person refused to cooperate, or when no phone number could be obtained, a screener report form was sent by certified mail.

Estimates of the proportion of census nonrespondents that operated farms were made for each stratum in the State using survey results and applied to the total number of census nonrespondents in that stratum. The number of census nonrespondents that operated farms for each county by stratum was then derived. This estimation procedure is based on the assumption that the distribution of farms in a stratum by county is the same for census nonrespondents as for census respondents.

Certain census respondent farms which exhibited "rare" commodities were designated as "ineligible" to represent census nonrespondent farms and were excluded from the nonresponse weighting operation. The procedure explained below was performed with only the eligible respondent cases: Within each stratum in a county, a noninteger nonresponse weight was calculated and assigned to each eligible respondent farm record. The noninteger nonresponse weight is the ratio of the sum of the estimated number of nonrespondent farms from the nonresponse survey and the number of eligible census respondent farms to the number of eligible census respondent farms. Stratum controls were established to ensure that this weight was never greater than 2.0. The noninteger nonresponse weight was used in the calculation of the final weight for the sample items. The noninteger nonresponse weight was randomly rounded to an integer weight of either 1 or 2 for each record for tabulating the complete count items for publication.

Table A quantifies the effect of the nonresponse estimation procedure on selected census data items. The percentages in these tables are the percents of the census values contributed by nonresponse estimation. These indicate the potential for bias in published figures resulting from nonresponse to the census. The estimates provided

in these tables do not reflect the effect of item nonresponse to individual census data items. The effect of item nonresponse is discussed in the Census Nonsampling Error section.

Table A. Percent of State Totals Contributed by Whole Farm Nonresponse Estimation: 1992

Item	Percent of total
Farms	15.5
Land in farms.....	8.7
Estimated market value of land and buildings ¹	4.3
Market value of agricultural products sold	1.7
Harvested cropland	6.4
Corn for grain or seed	2.0
Wheat for grain	—
Livestock and poultry inventory:	
Cattle and calves	4.8
Hogs and pigs	18.1
Hens and pullets of laying age.....	.1

¹Data are based on a sample of farms.

Sample Estimation

Sample data estimates the population totals that would have resulted from a complete census for the items in sections 21 through 26 of the sample report form. The estimates were obtained from a ratio estimation procedure that resulted in the assignment of a weight to each respondent record containing sample items. For any given county, a sample item total was estimated by multiplying the data items for each farm in the county by the corresponding sample weight and summing over all sample records in the county.

Each respondent sample farm was assigned a sample weight for use in producing estimates for all sample items. For example, if the weight given to a sample farm had the value 6, all sample data items reported by that farm would be multiplied by 6. The weight assigned to a sample certainty farm was 1.

Other than certainty farms, within a county, the ratio estimation procedure for farms was performed in three steps using three variables. The first variable contained eight 1992 total value of agricultural production (TVP) groups. Both the second and third variables, Standard Industrial Classification (SIC) code and farm acreage, contained two groups. The three sets of groups were as follows:

TVP	SIC	Acres
\$1 to \$999	01 All crops	1 to 69
\$1,000 to \$2,499	02 All livestock	70 or more
\$2,500 to \$4,999		
\$5,000 to \$9,999		
\$10,000 to \$24,999		
\$25,000 to \$49,999		
\$50,000 to \$99,999		
\$100,000 or more		

The first step in the estimation procedure was to classify the sample records into 32 mutually exclusive initial post strata formed by the three sets of groups. The total and sample farm counts were expanded to account for nonresponse. Each cell containing sample farm records was assigned an initial sample weight equal to the ratio of the total farm count to the sample farm count. This weight was approximately equal to the inverse of the probability of selecting a farm for the census sample.

The second step in the estimation procedure was to combine, if necessary, the 32 initial post strata to increase the reliability of the ratio estimation procedure. Any stratum that contained less than 10 sample farms after nonresponse adjustment or had a weight greater than two times the mail sample rate was collapsed with another stratum. The mail sample rate was either 2 or 6, depending on whether the county had a 1 in 2 or 1 in 6 sample selection rate. The collapsing occurred within the initial 32 post strata according to a specified collapsing pattern. After the collapsing process was completed, new total farm counts and sample farm counts were computed from each of the final post strata and were used to calculate final sample weights.

The final step consisted of assigning the noninteger final post stratum weight to the sample farm records in each post stratum. The weight is the ratio of total farm count to sample farm count in each final post stratum. The noninteger sample weight, the product of the noninteger final post stratum weight and the nonresponse weight, was randomly rounded to an integer weight for tabulation. If, for example, the final weight for the farms in a particular post stratum was 7.2, then 0.2 or one-fifth of the sample farms in this post stratum were randomly assigned a weight of 8 and the remaining four-fifths received a weight of 7.

CENSUS SAMPLING ERROR

The sample for the 1992 Census of Agriculture is only one of a large number of possible samples of the same size that could have been selected using the same sample design. Sample refers to the sample for both the nonresponse survey and the selection of farms to receive the sample report forms. Estimates derived from all the possible samples would differ from each other only by random variation.

The standard error or sampling error of a survey estimate is a measure of the variation among the estimates from all possible samples and thus is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. The percent relative standard error of an estimate is defined as 100 times the standard error of the estimate divided by the value of the estimate.

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

1. Approximately 90 percent of the intervals from 1.65 standard errors below the estimate to 1.65 standard errors above the estimate would include the average value of all possible samples.
2. Approximately 95 percent of the intervals from 1.96 standard errors below the estimate to 1.96 standard errors above the estimate would include the average value of all possible samples.

The following example illustrates the computations necessary for producing a confidence interval for an estimate. Assume that the estimate of number of farms for a State is 94,382 and the relative standard error of the estimate is .1 percent (0.001). Multiplying 94,382 by 0.001 yields 94, the standard error; therefore, a 90-percent confidence interval is 94,227 to 94,537 (i.e., 94,382 plus or minus 1.65 x 94). If corresponding confidence intervals were constructed for all possible samples of the same size and design, approximately 90 percent of these intervals would contain the figure obtained from a complete enumeration. Similarly, a 95-percent confidence interval is 94,198 to 94,566 (i.e., 94,382 plus or minus 1.96 x 94).

Census items were classified as either complete count or sample count items. Complete count items were asked of all farm operators. Examples of complete count items were land in farms, harvested cropland, livestock inventory and sales, crop acreage, quantities harvested and crop sales, land use, irrigation, government loans and payments, conservation acreage, type of organization, and operator characteristics.

Sample count items were asked only of a sample of farm operators. These items appeared only in sections 21 through 26 of the sample report form. Sample count items were included under the following section headings: commercial fertilizers, chemicals, production expenses, farm machinery and equipment, value of land and buildings, and farm-related income.

Variability, measured as percent relative standard error, in the estimates of complete count items is due only to the nonresponse survey estimation procedure. Variability in the estimates of sample count items is due to both the nonresponse survey estimation procedure and the census sample selection and estimation procedure. Thus, variability in the sample count item estimates tends to be larger than the variability in the complete count item estimates.

Table B provides the generalized reliability estimates of the estimated number of farms in a county reporting complete count and sample count items. The top half of the table shows the percent relative standard error for estimated number of farms in a county reporting a complete count item and the bottom half a sample count item. These are derived from regression equations. Separate regression equations were used for complete count items and sample count items. Each regression equation was fit with the estimated number of farms in a county reporting an item as the independent variable and the relative variance of that estimate as the dependent variable for all counties in the State. For sample count items, only data

from counties sampled at a rate of 1 in 6 are used in the estimation of the regression equation.

Table B. Reliability Estimates for Number of Farms in a County Reporting a Complete Count Item or Sample Count Item: 1992

Farms	Relative standard error of estimate (percent)
COMPLETE COUNT ITEM	
Number of farms reporting:	
25	6.2
50	4.2
75	3.3
100	2.7
150	1.9
200	1.3
3002
5002
7501
1,000	(NA)
1,500	(NA)
2,000	(NA)
SAMPLE COUNT ITEM	
Number of farms reporting:	
25	34.8
50	25.2
75	21.1
100	18.7
150	15.9
200	14.3
300	12.6
500	10.9
750	10.0
1,000	(NA)
1,500	(NA)
2,000	(NA)

To illustrate the use of this table, assume that the estimate of the number of farms reporting hogs and pigs for a particular county, as given in county table 15, is 89. Since hogs and pigs is a complete count data item, refer to the first part of table B and use the estimated percent relative standard error of the estimate from the row with farm count equal to or just less than the estimated number of farms, 89. For this example, the percent relative standard error of the estimate comes from the row for 75 farms reporting. For sample count items, follow the same procedure using the second part of table B. For counties with fewer than 100 farms in the 1987 Census of Agriculture, variability in sample count item estimates comes only from nonresponse survey estimation procedures; thus, the estimated relative standard error for a sample count item in these counties may be obtained using the first part of table B.

Table C presents the percent relative standard error of selected State data items for all farms, and table D presents the percent relative standard error of selected State data items for all farms with sales of \$10,000 or more.

Table E presents the percent standard error for percent change in State totals from 1987 to 1992. The general

purpose of the percent change estimate is to provide a relative measure of the difference in a characteristic between censuses. The relative change for a given characteristic is defined as the ratio of the difference of the 1992 and the 1987 estimate for that characteristic to the 1987 estimate. This ratio is multiplied by 100 to obtain the percent change. The percent standard error of a percent change estimate, then, is the standard error of the ratio multiplied by 100.

Table F presents the percent relative standard error for State and county totals for selected data items. The percent relative standard error of the estimate for the same item differs among counties in the State. Reasons for this are differences among counties in (1) the total number of farms, (2) the number of large farms included with certainty, (3) the size classifications of the farms sampled, (4) the amount of nonresponse, (5) the general agricultural characteristics, and (6) the specific characteristic being measured.

CENSUS NONSAMPLING ERROR

The accuracy of the census counts are affected jointly by sampling errors, described in the previous section, and nonsampling errors. Extensive efforts were made to compile a complete and accurate mail list for the census, to design an understandable report form with instructions, and to minimize processing errors through the use of quality control measures on specific operations. Nonsampling errors arise from incompleteness of the census mail list, duplication in the mail list, incorrect data reporting, errors in editing of reported data, and errors in imputation for missing data. These specific nonsampling errors are further discussed in this section. Evaluation studies will be conducted to measure the extent of certain nonsampling errors such as coverage error and classification error.

Census Coverage

The main objective of the census of agriculture is to obtain a complete and accurate enumeration of U.S. farms with accurate data on all aspects of the agricultural operation. However, the high cost and availability of resources for enumeration place restrictions on feasible data collection methodologies. The past six agriculture censuses have been conducted by mail enumeration with telephone contact for selected nonrespondents. The completeness of such an enumeration thus depends to a large extent on the coverage of farm operations by the census mail list.

The past five censuses of agriculture have included approximately 91 percent of farms in the United States and approximately 96 percent of agriculture production. Complete enumeration of agricultural operations satisfying the farm definition of \$1,000 or more in agricultural sales is complicated by fluctuations in agricultural operations qualifying for enumeration, the variety of arrangements under which farms are operated, the multiplicity of names used

by an operation, the number of operations in which an operator participates, the accuracy of data reporting, and other factors. A new mail list is compiled for each census because no current single list of agricultural operations is comprehensive.

An evaluation of census coverage has been conducted for each census of agriculture since 1945. The evaluation provides estimates of the completeness of census farm count and major census data items. In addition, the evaluation helps to identify problems in the census enumeration and provide information that can form the basis for improvements. The results of the 1992 Coverage Evaluation program will be published in volume 2, Subject Series (Part 2): Coverage Evaluation.

The evaluation of coverage for the 1992 census was designed to measure four components of error in the census mail list and in farm classification. Mail list error includes two components of error, a measurement of farms not on the census mail list (undercount) and a measurement of farms enumerated more than once in the census (overcount). Classification error includes two components of error, a measurement of farms classified as nonfarms in the census (undercount) and of nonfarms classified as farms in the census (overcount). Classification error arises from reporting and processing errors. Mail list undercount dominates all coverage errors. Net coverage error is defined as the difference between undercounted and overcounted farms. Measurements of these errors, as well as a description of the complete coverage program, will be available in the Coverage Evaluation report.

Mail List Coverage

A major problem with mail enumeration for the census of agriculture is the difficulty encountered in compiling a complete mail list. The percentage of farms included on the census mail list varies considerably by State. Several reasons have contributed to farm operator names not being included on the census mail list—the operation may have been started after the mail list was developed, the operation may be so small as not to appear in any of the agriculture-related source lists used in compiling the census list, or the operation may have been falsely classified as a nonfarm prior to mailout. A large proportion of the farms not included on the mail list are small in both acres and sales of agricultural products.

The 1992 Census of Agriculture Coverage Evaluation used the area segment sample of the 1992 June Agricultural Survey (JAS) of the National Agricultural Statistical Service (NASS) to estimate farms not on the census mail list. The Census Bureau contracted with NASS to augment the JAS data collection. The survey data collected by NASS will be protected under the confidentiality of title 13, U.S. Code. These JAS survey records were matched to the census mail list. Records that did not match were mailed a census of agriculture report form to estimate mail list

coverage. Estimates of farms not on the census mail list are computed using a capture-recapture dual frame estimator which will be described in the Coverage Evaluation report mentioned earlier.

Table G provides coverage evaluation estimates for one component of coverage error associated with the census of agriculture; that is, the error due to farms not on the census mail list. Also provided are estimates of selected characteristics of farms not on the mail list, estimates of characteristics of farms not on the mail list as a percentage of total farms in the State, and the percent relative standard error associated with each estimate. The estimate of total farms in the State is based on census farm count plus the estimated number of farms not on the census mail list. This estimate of total farms in the State was not adjusted for the components of error associated with classification and list duplication error. Estimates of these errors will be made at the regional, rather than the State level, and will be provided in the Coverage Evaluation report mentioned earlier.

Respondent and Enumerator Error

Incorrect or incomplete responses to the mailed census report form or to the questions posed by a telephone enumerator introduce error into the census data. Such incorrect information can lead, in some cases, to incorrect classification of farms. This type of reporting error is measured by the Classification Error Survey discussed later in this section. To reduce all types of reporting error, detailed instructions for completing the report form were provided to each addressee. Questions were phrased as clearly as possible based on tests of the census report form and each respondent's answers were checked for completeness and consistency.

Item Nonresponse

As information flows from data collection to tabulation, various types of item nonresponses are identified on the report forms. Nonresponse to particular questions on the report form that logically should be present may create a type of nonsampling error in both complete count and sample count data. When information from reporting farms is used to edit or impute for item nonresponse, the data may be biased due to characteristics of the nonreporting respondents differing from those reporting the item. Any attempt to correct the data items may not completely reflect this difference either at the element level (individual farm operation) or on the average.

Processing Error

All phases of processing for each report form are sources for the introduction of nonsampling error. The processing of the report forms includes clerical screening for farm activity, computerized check-in of report forms and follow-up of nonrespondents, keying and transmittal of

completed report forms, computerized editing of inconsistent and missing data, review and correction of individual records referred from the computer edit, review and correction of tabulated data, and electronic data processing. These operations undergo a number of quality control checks to ensure as accurate an application as possible, yet some errors are not detected and corrected.

Classification Error

An evaluation study of classification errors was conducted in the 1992 Census of Agriculture as part of the census coverage evaluation program. A sample of census mail list respondents was selected, and these addresses were reenumerated to determine whether they were a farm or nonfarm. A farm status determination was made based on the evaluation report form and compared with the census farm status which was based on the data reported on the report form. Differences in status were reconciled.

In past censuses, the proportion of farms undercounted due to classification errors was higher for farms with small values of sales. For the 1987 census, the classification error rate was higher for (1) farms with small values of sales, (2) farms with a small number of acres, (3) full-owner farms than part-owner or tenant farms, (4) operators with principal occupation other than farming, and (5) males than females. Results from the 1992 Classification Error Survey will be published in the Coverage Evaluation report.

EDITING DATA AND IMPUTATION FOR ITEM NONRESPONSE

The Census of Agriculture Complex Edit and Imputation System performs the following functions:

- Ensuring reasonable relationships between/among data items, values for various sizes of farms, and combinations of commodities.
- Ensuring necessary consistencies are present. There are more than 70 distinct consistency requirements.
- Ensuring geographic, legal, and physical constraints are met.

The system must perform these and similar functions for 900 data keycodes for sample records and 850 data keycodes for nonsample records.

For the 1992 Census of Agriculture, as in previous censuses, all reported data were keyed and then edited by computer. The edits were used to determine whether the reports met the minimum criteria to be counted as farms in the census. The complex edit and imputation system provided the basis for deciding to accept, impute (supply), delete, or alter the reported value for each data record item.

Whenever possible, edit imputations, deletions, and changes were based on component or related data on the respondent's report form. For some items, such as operator characteristics, data from the previous census were used when available. Values for other missing or unacceptable reported data items were calculated based on reported quantities and known price parameters.

When these and similar methods were not available and values had to be supplied, the imputation process used information reported for another farm operation in a geographically adjacent area with characteristics similar to those of the farm operation with incomplete data. For example, a farm operation that reported acres of corn harvested, but did not report quantity of corn harvested, was assigned the same bushels of corn per acre harvested as that of the last nearby farm with similar characteristics that reported acceptable yields during that particular execution of the computer edit. The imputation for missing items in each section of the report form was conducted separately; thus, assigned values for one operation could come from more than one respondent.

Prior to the imputation operation, a set of default values and relationships were assigned to the possible imputation variables. The relationships and values varied depending on the item being imputed. For example, different default values were assigned for several standard industrial classification and total value of sales categories when imputing hired farm labor expenses. These values and item relationships for the possible imputation variables were stored in the computer in a series of matrices.

Each execution of the computer edit consisted of records from only one State. The computer records were sorted by reported State and county. For a given execution of the edit, the stored entries in the various matrices were retained in memory only until a succeeding record having acceptable characteristics for some sections of the report form was processed by the computer. Then the acceptable responses of the succeeding operation replaced those previously stored. When a record processed through the edit had unreported or unacceptable data, the record was assigned the last acceptable ratio or response from an operation with a similar set of characteristics. Once each execution of the computer edit for a State was completed, the possible imputation variables were reset to the default values and relationships for subsequent executions.

After the initial computer edit, keyed reports not meeting the census farm definition were reviewed to ensure that the data were keyed correctly. Edit referrals were generated for about 25 percent of the reports included as farms; they were reviewed for keying accuracy to ensure that the computer edit actions were correct. If the results of the computer edit were not acceptable, corrections were made and the record was reedited.

Table C. Reliability Estimates of State Totals for All Farms: 1992

[For meaning of abbreviations and symbols, see introductory text]

Item	Total	Relative standard error of estimate (percent)	Item	Total	Relative standard error of estimate (percent)
FARMS AND LAND IN FARMS			FARM PRODUCTION EXPENSES¹		
Farms ----- number ..	3 427	1.2	Total farm production expenses ----- farms ..	3 426	1.3
Land in farms ----- acres ..	358 743	.8	Average per farm ----- dollars ..	282 694	.5
Average size of farm ----- acres ..	105	1.4	Livestock and poultry purchased ----- farms ..	969	6.3
MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD			----- \$1,000 ..	9 381	4.4
Total sales (see text) ----- farms ..	3 427	1.2	----- farms ..	1 717	3.9
Average per farm ----- dollars ..	98 332	1.2	----- \$1,000 ..	55 796	1.2
Farms by value of sales:			Commercially mixed formula feeds ----- farms ..	936	5.9
Less than \$1,000 (see text) ----- farms ..	659	2.3	----- \$1,000 ..	31 019	1.7
\$1,000 to \$2,499 ----- farms ..	167	2.9	Seeds, bulbs, plants, and trees ----- farms ..	1 469	4.1
\$2,500 to \$4,999 ----- farms ..	461	2.4	----- \$1,000 ..	6 686	1.5
\$5,000 to \$9,999 ----- farms ..	754	2.4	Commercial fertilizer ----- farms ..	2 051	3.3
\$10,000 to \$19,999 ----- farms ..	442	2.1	----- \$1,000 ..	11 236	2.1
\$20,000 to \$24,999 ----- farms ..	1 572	2.2	Agricultural chemicals ----- farms ..	1 458	4.2
\$25,000 to \$39,999 ----- farms ..	476	1.9	----- \$1,000 ..	4 506	1.6
\$40,000 to \$49,999 ----- farms ..	3 311	2.0	Petroleum products ----- farms ..	3 184	1.7
\$50,000 to \$99,999 ----- farms ..	355	2.0	----- \$1,000 ..	9 985	1.2
\$100,000 to \$249,999 ----- farms ..	4 954	2.0	Electricity ----- farms ..	2 317	2.8
\$250,000 to \$499,999 ----- farms ..	125	3.2	----- \$1,000 ..	7 354	1.2
\$500,000 or more ----- farms ..	2 748	3.2	Hired farm labor ----- farms ..	1 001	4.7
Sales by commodity or commodity group:			Contract labor ----- farms ..	77 980	.2
Crops, including nursery and greenhouse crops ----- farms ..	2 027	1.2	----- \$1,000 ..	324	10.9
Grains ----- farms ..	183 300	.2	Repair and maintenance ----- farms ..	3 901	7.2
Corn for grain ----- farms ..	60	3.1	----- \$1,000 ..	2 919	2.1
Wheat ----- farms ..	872	1.7	Customwork, machine hire, and rental of machinery and equipment ----- farms ..	14 857	1.6
Soybeans ----- farms ..	37	4.3	----- \$1,000 ..	542	8.4
Sorghum for grain ----- farms ..	769	1.4	Interest expense ----- farms ..	1 592	3.8
Barley ----- farms ..	4	—	Secured by real estate ----- farms ..	878	5.4
Oats ----- farms ..	(D)	—	----- \$1,000 ..	10 443	2.0
Other grains ----- farms ..	5	13.7	Not secured by real estate ----- farms ..	640	6.4
Cotton and cottonseed ----- farms ..	(D)	—	----- \$1,000 ..	8 381	2.2
Tobacco ----- farms ..	43	3.6	Cash rent ----- farms ..	451	7.7
Hay, silage, and field seeds ----- farms ..	23 742	.3	----- \$1,000 ..	2 062	3.5
Vegetables, sweet corn, and melons ----- farms ..	973	1.4	Property taxes ----- farms ..	893	5.3
Fruits, nuts, and berries ----- farms ..	6 350	1.3	----- \$1,000 ..	4 052	3.4
Nursery and greenhouse crops ----- farms ..	638	1.5	All other farm production expenses ----- farms ..	3 202	1.6
Other crops ----- farms ..	126 581	4.8	----- \$1,000 ..	10 511	3.1
Livestock, poultry, and their products ----- farms ..	43	5.9	NET CASH RETURN FROM AGRICULTURAL SALES FOR THE FARM UNIT (SEE TEXT) ¹	3 042	1.8
Poultry and poultry products ----- farms ..	304	1.2	All farms ----- number ..	54 415	.5
Dairy products ----- farms ..	1 729	1.2	Average per farm ----- dollars ..	15 722	2.4
Cattle and calves ----- farms ..	153 683	.2	Farms with net gains ² ----- number ..	1 476	3.5
Hogs and pigs ----- farms ..	268	2.2	Average net gain ----- dollars ..	68 286	1.2
Sheep, lambs, and wool ----- farms ..	67 140	.1	Farms with net losses ----- number ..	46 264	3.7
Other livestock and livestock products (see text) ----- farms ..	384	1.1	Average net loss ----- dollars ..	1 950	3.0
Value of agricultural products sold directly to individuals for human consumption (see text) ----- farms ..	71 079	.3	GOVERNMENT PAYMENTS AND OTHER FARM-RELATED INCOME	14 422	4.3
----- \$1,000 ..	1 103	1.2	Government payments ----- farms ..	7 396	5.3
----- \$1,000 ..	10 557	.8	Other farm-related income ¹ ----- farms ..	353	1.3
----- \$1,000 ..	201	2.5	Customwork and other agricultural services ----- farms ..	1 294	.9
----- \$1,000 ..	800	4.4	Gross cash rent or share payments ----- farms ..	906	6.6
----- \$1,000 ..	281	2.4	Forest products and Christmas trees ----- farms ..	4 840	9.1
----- \$1,000 ..	397	4.3	Other farm-related income sources ----- farms ..	293	12.9
COMMODITY CREDIT CORPORATION LOANS			----- \$1,000 ..	1 384	27.0
Total ----- farms ..	373	2.2	----- \$1,000 ..	238	15.5
----- \$1,000 ..	3 710	2.0	----- \$1,000 ..	697	18.8
			----- \$1,000 ..	354	11.3
			----- \$1,000 ..	1 393	7.0
			----- \$1,000 ..	273	11.2
			----- \$1,000 ..	1 366	10.6

See footnotes at end of table.

Table C. Reliability Estimates of State Totals for All Farms: 1992 — Con.

[For meaning of abbreviations and symbols, see introductory text]

Item	Total	Relative standard error of estimate (percent)	Item	Total	Relative standard error of estimate (percent)
FARMS BY SIZE			LIVESTOCK		
1 to 9 acres ----- farms ..	606	1.9	Cattle and calves inventory ----- farms ..	1 345	1.2
----- acres ..	2 680	2.1	----- number..	78 044	.5
10 to 49 acres ----- farms ..	1 172	1.7	Beef cows ----- farms ..	770	1.6
----- acres ..	29 193	1.7	----- number..	6 878	2.1
50 to 69 acres ----- farms ..	364	2.1	Milk cows ----- farms ..	486	1.2
----- acres ..	21 045	2.1	----- number..	34 552	.4
70 to 99 acres ----- farms ..	259	2.3	Cattle and calves sold ----- farms ..	1 103	1.2
----- acres ..	21 435	2.3	----- number..	31 200	.6
100 to 139 acres ----- farms ..	295	2.1	----- \$1,000..	10 557	.8
----- acres..	34 239	2.1	Hogs and pigs inventory ----- farms ..	293	2.2
----- farms ..	164	2.3	----- number..	5 588	3.6
140 to 179 acres ----- farms ..	25 870	2.4	Hogs and pigs sold ----- farms ..	201	2.5
----- acres..	148	2.6	----- number..	8 232	5.6
180 to 219 acres ----- farms ..	29 477	2.5	----- \$1,000..	800	4.4
----- acres..	90	2.8	Sheep and lambs of all ages inventory ----- farms ..	312	2.3
220 to 259 acres ----- farms ..	21 313	2.8	----- number..	7 501	3.8
----- acres..	217	1.5	Sheep and lambs sold ----- farms ..	247	2.5
260 to 499 acres ----- farms ..	76 707	1.4	----- number..	5 204	3.4
----- acres..	86	1.7	Horses and ponies inventory ----- farms ..	816	1.7
500 to 999 acres ----- farms ..	56 531	1.7	----- number..	5 794	2.1
----- acres..	19	—	Horses and ponies sold ----- farms ..	219	2.5
1,000 to 1,999 acres ----- farms ..	(D)	(D)	----- number..	666	2.9
----- acres..	7	—	POULTRY		
2,000 acres or more ----- farms ..	(D)	(D)	Chickens 3 months old or older inventory ----- farms ..	391	2.1
----- acres..	(D)	(D)	----- number..	4 494 659	.1
FARMS BY STANDARD INDUSTRIAL CLASSIFICATION			Hens and pullets of laying age ----- farms ..	380	2.2
Cash grains (011) ----- farms ..	14	8.1	----- number..	3 665 628	(L)
----- acres..	3 677	7.8	Broilers and other meat-type chickens sold ----- farms ..	42	4.5
Field crops, except cash grains (013) ----- farms ..	638	1.7	----- number..	943 569	3.3
----- acres..	76 629	1.8	CROPS HARVESTED		
Vegetables and melons (016) ----- farms ..	313	2.1	Corn for silage or green chop ----- farms ..	500	1.2
----- acres..	22 309	2.3	----- acres..	37 825	.4
Fruits and tree nuts (017) ----- farms ..	254	2.4	----- tons, green	689 551	.5
----- acres..	16 603	2.4	Tobacco ----- farms ..	43	3.6
Horticultural specialties (018) ----- farms ..	517	1.6	----- acres..	1 456	.9
----- acres..	20 782	1.3	----- pounds..	2 310 666	1.0
General farms, primarily crop (019) ----- farms ..	152	3.1	Irish potatoes ----- farms ..	47	4.6
----- acres..	13 449	3.5	----- acres..	279	4.9
Livestock, except dairy, poultry, and animal specialties (021) ----- farms ..	690	1.8	----- cwt..	57 401	7.4
----- acres..	60 330	1.9	Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text) ----- farms ..	1 752	1.2
Dairy farms (024) ----- farms ..	360	1.1	----- acres..	81 281	.9
----- acres..	125 337	.6	----- tons, dry	176 190	.8
Poultry and eggs (025) ----- farms ..	118	2.7	Vegetables harvested for sale (see text) ----- farms ..	579	1.5
----- acres..	5 296	2.8	----- acres..	9 994	.9
Animal specialties (027) ----- farms ..	344	2.3	----- farms ..	332	2.1
----- acres..	11 912	3.6	----- acres..	4 481	1.5
General farms, primarily livestock and animal specialties (029) ----- farms ..	27	7.4			
----- acres..	2 419	7.4			

¹Data are based on a sample of farms.

²Farms with total production expenses equal to market value of agricultural products sold are included as farms with gains of less than \$1,000.

Table D. Reliability Estimates of State Totals for Farms With Sales of \$10,000 or More: 1992

[For meaning of abbreviations and symbols, see introductory text]

Item	Total	Relative standard error of estimate (percent)	Item	Total	Relative standard error of estimate (percent)
FARMS AND LAND IN FARMS			FARM PRODUCTION EXPENSES¹		
Farms ----- number ..	1 389	.9	Total farm production expenses ----- farms ..	1 354	1.4
Land in farms ----- acres ..	240 611	.6	----- \$1,000 ..	268 629	.5
Average size of farm ----- acres ..	173	1.1	Average per farm ----- dollars ..	198 396	1.5
MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD			NET CASH RETURN FROM AGRICULTURAL SALES FOR THE FARM UNIT (SEE TEXT)¹		
Total sales (see text) ----- farms ..	1 389	.9	All farms ----- number ..	1 354	1.4
----- \$1,000 ..	331 179	.1	----- \$1,000 ..	62 194	1.5
Average per farm ----- dollars ..	238 430	.9	Average per farm ----- dollars ..	45 933	2.1
Farms by value of sales:			Farms with net gains ² ----- number ..	1 056	3.2
\$10,000 to \$19,999 ----- farms ..	355	2.0	----- \$1,000 ..	67 487	1.2
----- \$1,000 ..	4 954	2.0	Average net gain ----- dollars ..	63 908	3.4
\$20,000 to \$24,999 ----- farms ..	125	3.2	Farms with net losses ----- number ..	298	10.3
----- \$1,000 ..	2 748	3.2	----- \$1,000 ..	5 293	5.2
\$25,000 to \$39,999 ----- farms ..	170	2.8	Average net loss ----- dollars ..	17 763	11.6
----- \$1,000 ..	5 388	2.8	GOVERNMENT PAYMENTS AND OTHER FARM-RELATED INCOME		
\$40,000 to \$49,999 ----- farms ..	79	3.7	Government payments ----- farms ..	257	1.1
----- \$1,000 ..	3 519	3.7	----- \$1,000 ..	1 198	.8
\$50,000 to \$99,999 ----- farms ..	214	2.0	Other farm-related income ¹ ----- farms ..	382	8.6
----- \$1,000 ..	15 208	2.0	----- \$1,000 ..	3 419	11.2
\$100,000 to \$249,999 ----- farms ..	221	—	Customwork and other agricultural services ----- farms ..	121	18.7
----- \$1,000 ..	35 271	—	----- \$1,000 ..	1 060	33.8
\$250,000 to \$499,999 ----- farms ..	124	—	Gross cash rent or share payments ----- farms ..	60	26.5
----- \$1,000 ..	42 170	—	----- \$1,000 ..	320	28.9
\$500,000 or more ----- farms ..	101	—	Forest products and Christmas trees ----- farms ..	125	17.3
----- \$1,000 ..	221 921	—	----- \$1,000 ..	932	4.6
Sales by commodity or commodity group:			Other farm-related income sources ----- farms ..	183	11.2
Crops, including nursery and greenhouse crops ----- farms ..	967	1.1	----- \$1,000 ..	1 107	7.2
----- \$1,000 ..	179 809	.2	COMMODITY CREDIT CORPORATION LOANS		
Grains ----- farms ..	46	3.1	Total ----- farms ..	5	6.0
----- \$1,000 ..	839	1.7	----- \$1,000 ..	(D)	(D)
Corn for grain ----- farms ..	26	4.4			
----- \$1,000 ..	(D)	(D)			
Wheat ----- farms ..	4	—			
----- \$1,000 ..	5	—			
Soybeans ----- farms ..	2	19.3			
----- \$1,000 ..	(D)	(D)			
Sorghum for grain ----- farms ..	1	—			
----- \$1,000 ..	(D)	(D)			
Barley ----- farms ..	1	—			
----- \$1,000 ..	(D)	(D)			
Oats ----- farms ..	8	8.4			
----- \$1,000 ..	27	14.5			
Other grains ----- farms ..	23	4.1			
----- \$1,000 ..	(D)	(D)			
Cotton and cottonseed ----- farms ..	—	—			
----- \$1,000 ..	—	—			
Tobacco ----- farms ..	40	3.6			
----- \$1,000 ..	23 715	.3			
Hay, silage, and field seeds ----- farms ..	363	1.6			
----- \$1,000 ..	4 670	1.6			
Vegetables, sweet corn, and melons ----- farms ..	349	1.6			
----- \$1,000 ..	12 604	.9			
Fruits, nuts, and berries ----- farms ..	190	2.1			
----- \$1,000 ..	11 820	.8			
Nursery and greenhouse crops ----- farms ..	425	1.4			
----- \$1,000 ..	125 867	.2			
Other crops ----- farms ..	29	5.2			
----- \$1,000 ..	293	6.1			
Livestock, poultry, and their products ----- farms ..	754	1.1			
----- \$1,000 ..	151 370	.2			
Poultry and poultry products ----- farms ..	118	2.4			
----- \$1,000 ..	67 036	.1			
Dairy products ----- farms ..	375	1.1			
----- \$1,000 ..	71 045	.3			
Cattle and calves ----- farms ..	577	1.1			
----- \$1,000 ..	9 379	.9			
Hogs and pigs ----- farms ..	75	3.3			
----- \$1,000 ..	614	5.5			
Sheep, lambs, and wool ----- farms ..	76	3.4			
----- \$1,000 ..	222	7.1			
Other livestock and livestock products (see text) ----- farms ..	107	3.3			
----- \$1,000 ..	3 074	2.3			
Value of agricultural products sold directly to individuals for human consumption (see text) ----- farms ..	274	1.9			
----- \$1,000 ..	5 712	1.2			

See footnotes at end of table.

Table D. **Reliability Estimates of State Totals for Farms With Sales of \$10,000 or More: 1992—Con.**

[For meaning of abbreviations and symbols, see introductory text]

Item	Total	Relative standard error of estimate (percent)	Item	Total	Relative standard error of estimate (percent)
POULTRY			CROPS HARVESTED—Con.		
Chickens 3 months old or older inventory -----farms -- number--	112	2.7	Tobacco ----- farms -- acres--	40	3.6
Hens and pullets of laying age -----farms -- number--	4 475 794 105	.1 2.8	Irish potatoes ----- farms -- acres--	14 486 2 299 771	.9 1.0
Broilers and other meat-type chickens sold -----farms -- number--	3 655 938 26	(L) 4.8	Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text) -----farms -- acres--	28 268 55 950	5.1 5.1 7.6
	942 699	3.3	Vegetables harvested for sale (see text) -----farms -- acres--	678 57 118 138 397	1.1 .9 .8
CROPS HARVESTED			Land in orchards ----- farms -- acres--	349 9 261 143	1.6 .9 2.4
Corn for silage or green chop -----farms -- acres--	386 36 348	1.1 .4		3 729	1.5
	667 354	.5			

¹Data are based on a sample of farms.

²Farms with total production expenses equal to market value of agricultural products sold are included as farms with gains of less than \$1,000.

Table E. Reliability Estimates of Percent Change in State Totals: 1987 to 1992

[For meaning of abbreviations and symbols, see introductory text]

Item	All farms		Farms with sales of \$10,000 or more	
	Percent change from 1987 to 1992	Standard error of estimate	Percent change from 1987 to 1992	Standard error of estimate
Farms..... number..	-4.3	1.5	-6.6	1.2
Land in farms..... acres ..	-10.0	1.0	-9.7	.8
Average size of farm.....acres ..	-5.4	1.8	-3.4	1.5
Estimated market value of land and buildings ¹ :				
Average per farm.....dollars ..	33.5	6.1	36.6	7.5
Average per acre.....dollars ..	42.9	7.7	39.7	9.0
Estimated market value of all machinery and equipment ¹ :				
Average per farm.....dollars ..	-1.2	3.4	6.8	3.8
Farms by size:				
1 to 9 acres.....	8.2	2.6	7.3	3.0
10 to 49 acres.....	-3	2.2	-	2.4
50 to 179 acres.....	-8.0	1.8	-9.6	1.9
180 to 499 acres.....	-16.7	1.5	-14.2	1.5
500 to 999 acres.....	-9.5	1.9	-12.9	1.2
1,000 to 1,999 acres.....	-20.8	-	-20.8	-
2,000 acres or more.....	133.3	-	133.3	-
Total cropland.....farms ..	-3.3	1.5	-5.1	1.2
Harvested cropland.....acres..	-8.2	.9	-6.4	.8
Irrigated land.....farms ..	-3.0	1.5	-4.7	1.2
.....acres..	-6.5	.8	-4.6	.7
Market value of agricultural products sold.....\$1,000 ..	21.9	2.1	19.9	2.0
Average per farm.....dollars ..	-18.7	.8	-18.9	.6
Crops, including nursery and greenhouse crops.....\$1,000 ..	-5.8	.2	-5.9	.2
Livestock, poultry, and their products.....\$1,000 ..	-1.6	1.5	.7	1.3
Farms by value of sales:				
Less than \$2,500.....	-3.9	1.9	(X)	(X)
\$2,500 to \$4,999.....	-8.3	2.7	(X)	(X)
\$5,000 to \$9,999.....	7.0	2.9	(X)	(X)
\$10,000 to \$24,999.....	10.1	2.7	10.1	2.7
\$25,000 to \$49,999.....	-9.5	2.7	-9.5	2.7
\$50,000 to \$99,999.....	-13.4	2.5	-13.4	2.5
\$100,000 to \$249,999.....	-26.8	.2	-26.8	.2
\$250,000 to \$499,999.....	2.5	-	2.5	-
\$500,000 or more.....	-4.7	-	-4.7	-
Total farm production expenses ¹\$1,000..	10.8	1.5	10.6	1.7
Average per farm.....dollars ..	15.7	2.3	20.7	2.2
Net cash return from agricultural sales for the farm unit (see text) ¹farms..	-4.3	1.8	-8.4	1.5
Average per farm.....\$1,000..	-44.9	1.2	-40.3	1.0
.....dollars ..	-42.4	1.7	-34.9	1.5
Operators by principal occupation:				
Farming.....	-8	1.4	-7.9	1.1
Other.....	-8.0	2.0	-2.1	2.6
Operators by days worked off farm:				
Any.....	-9.7	4.7	2.4	5.4
200 days or more.....	-15.8	4.5	-9.3	5.0
Livestock and poultry:				
Cattle and calves inventory.....farms ..	-15.7	1.4	-12.1	1.4
.....number..	-12.6	.6	-12.6	.6
Beef cows.....farms ..	-13.2	2.0	-5	3.0
.....number..	-3.8	2.7	5.9	4.6
Milk cows.....farms ..	-22.9	1.3	-22.0	1.3
.....number..	-17.1	.5	-16.8	.5
Cattle and calves sold.....farms ..	-17.4	1.4	-16.1	1.3
.....number..	-24.1	.7	-24.1	.7
Hogs and pigs inventory.....farms ..	15.4	3.7	7.9	4.6
.....number..	2.9	5.3	11.0	7.5
Hogs and pigs sold.....farms ..	3.1	3.7	5.6	5.2
.....number..	-6.2	6.6	2.0	8.8
Sheep and lambs inventory.....farms ..	-4.3	3.1	27.9	6.1
.....number..	2.1	4.8	50.4	11.8
Chickens 3 months old or older inventory.....farms ..	-11.7	2.6	-27.7	2.6
.....number..	-8.5	.1	-8.7	.1
Broilers and other meat-type chickens sold.....farms ..	5.0	7.5	13.0	9.9
.....number..	10.9	7.8	12.5	8.1
Selected crops harvested:				
Corn for grain or seed.....farms ..	-29.6	2.9	-12.7	3.5
.....acres..	35.5	3.1	50.1	3.6
.....bushels..	88.0	4.5	104.6	5.1
Corn for silage or green chop.....farms ..	-19.9	1.3	-20.1	1.3
.....acres..	-11.8	.6	-11.9	.5
.....tons, green..	-12.0	.5	-12.2	.5
Irish potatoes.....farms ..	27.0	9.2	40.0	11.4
.....acres..	-48.7	3.1	-48.8	3.2
.....cwt..	-49.9	4.1	-50.2	4.2
Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text).....farms ..	-11.7	1.5	-12.2	1.4
.....acres..	-5.5	1.3	-1.9	1.3
.....tons, dry..	-4.3	1.2	-3	1.3
Vegetables harvested for sale (see text).....farms ..	28.4	2.9	28.3	3.1
.....acres..	16.1	1.9	15.5	2.0
Land in orchards.....farms ..	7.8	3.2	-8.3	3.0
.....acres..	-12.5	2.0	-15.8	2.1

¹Data are based on a sample of farms.

Table F. Reliability Estimates for the State and County Totals: 1992

[For meaning of abbreviations and symbols, see introductory text]

Geographic area	Farms		Land in farms		Average size of farm		Average market value of land and buildings per farm ¹		Estimated market value of all machinery and equipment ¹			
	Total (number)	Relative standard error of estimate (percent)	Total (acres)	Relative standard error of estimate (percent)	Total (acres)	Relative standard error of estimate (percent)	Value (dollars)	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)		
Connecticut --	3 427	1.2	358 743	.8	105	1.4	624 135	3.2	124 989	2.0		
Fairfield	241	1.3	9 975	3.1	41	3.3	623 929	17.6	7 238	13.8		
Hartford	628	1.2	56 510	1.0	90	1.6	693 723	6.0	27 197	3.0		
Litchfield	607	1.1	86 581	1.1	143	1.6	713 957	6.0	24 396	5.9		
Middlesex	256	1.4	19 830	2.2	77	2.6	461 853	12.0	5 166	7.6		
New Haven	381	1.2	25 882	1.6	68	2.0	700 573	7.7	12 731	3.1		
New London	550	1.2	65 987	1.3	120	1.7	613 569	7.8	22 071	2.5		
Tolland	326	1.3	38 715	1.4	119	1.9	570 801	10.0	10 028	6.2		
Windham	438	1.0	55 263	1.3	126	1.6	481 744	6.7	16 162	6.6		
Geographic area	Average market value of all machinery and equipment per farm ¹		Market value of agricultural products sold		Average market value of agricultural products sold per farm		Farm production expenses ¹					
	Value (dollars)	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Value (dollars)	Relative standard error of estimate (percent)	Total farm production expenses					
							Farms		Value			
							Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)		
Connecticut --	36 557	2.4	336 983	.1	98 332	1.2	3 426	1.3	282 694	.5		
Fairfield	30 158	13.9	8 717	1.0	36 170	1.6	240	1.8	6 994	3.6		
Hartford	43 308	3.3	90 845	.2	144 658	1.2	628	1.3	70 724	.6		
Litchfield	40 257	6.1	30 086	.5	49 564	1.2	606	1.2	26 017	3.2		
Middlesex	20 178	7.9	22 274	.3	87 006	1.5	256	2.1	19 267	.8		
New Haven	33 503	3.5	32 175	.3	84 448	1.2	380	1.5	25 887	1.9		
New London	40 498	3.2	97 687	.1	177 613	1.2	552	1.4	86 613	.5		
Tolland	30 760	6.3	21 429	.3	65 734	1.3	326	1.6	18 967	2.1		
Windham	36 900	6.8	33 770	.3	77 101	1.0	438	1.2	28 225	2.1		
Geographic area	Farm production expenses ¹ —Con.											
	Livestock and poultry purchased				Feed for livestock and poultry				Seeds, bulbs, plants, and trees			
	Farms		Value		Farms		Value		Farms		Value	
	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	
Connecticut --	969	6.3	9 381	4.4	1 717	3.9	55 796	1.2	1 469	4.1	6 686	1.5
Fairfield	78	25.5	164	17.9	112	17.8	407	14.3	83	21.7	375	5.1
Hartford	102	18.9	1 975	1.5	217	11.3	2 769	7.1	321	7.5	2 232	2.5
Litchfield	185	15.9	1 125	29.9	335	8.6	6 012	7.2	314	8.1	676	10.8
Middlesex	77	24.7	284	12.1	161	12.1	1 361	2.6	45	31.6	831	.4
New Haven	91	19.7	686	24.4	129	12.9	1 945	12.3	214	8.9	1 205	1.6
New London	171	13.1	2 565	3.2	306	8.7	29 203	1.0	177	11.4	646	2.4
Tolland	92	17.4	643	13.6	182	11.6	4 787	3.3	122	17.1	322	2.6
Windham	173	14.1	1 940	4.5	275	7.6	9 312	2.6	193	11.6	400	5.6
Geographic area	Farm production expenses ¹ —Con.											
	Commercial fertilizer				Agricultural chemicals				Petroleum products			
	Farms		Value		Farms		Value		Farms		Value	
	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	
Connecticut --	2 051	3.3	11 236	2.1	1 458	4.2	4 506	1.6	3 184	1.7	9 985	1.2
Fairfield	98	18.4	98	8.6	130	15.0	130	9.0	229	4.1	358	4.2
Hartford	431	6.3	3 115	4.2	295	7.1	2 237	2.2	601	1.9	2 759	1.8
Litchfield	401	6.6	1 147	14.8	288	9.4	418	8.4	578	2.5	1 318	4.2
Middlesex	122	17.0	287	3.8	69	25.3	162	1.3	237	5.6	343	6.3
New Haven	255	7.7	910	3.6	180	11.7	493	6.8	350	3.3	1 316	3.3
New London	289	8.8	4 131	.9	194	10.1	382	3.2	504	3.5	2 096	1.5
Tolland	188	11.5	663	11.7	130	16.3	227	5.4	303	4.1	732	4.3
Windham	267	8.4	885	3.4	172	12.0	456	2.8	382	4.9	1 063	5.8

See footnotes at end of table.

Table F. Reliability Estimates for the State and County Totals: 1992 – Con.

[For meaning of abbreviations and symbols, see introductory text]

Geographic area	Farm production expenses ¹ —Con.											
	Electricity				Hired farm labor				Contract labor			
	Farms		Value		Farms		Value		Farms		Value	
	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)
Connecticut ..	2 317	2.8	7 354	1.2	1 001	4.7	77 980	.2	324	10.9	3 901	7.2
Fairfield	143	14.3	138	5.0	73	21.2	1 876	1.4	21	40.4	35	6.6
Hartford	459	5.5	1 382	2.4	219	10.0	29 806	.3	41	25.6	1 489	4.2
Litchfield	450	5.2	848	5.9	177	11.3	3 826	.9	81	25.9	472	55.8
Middlesex	137	12.8	203	5.3	54	27.7	5 472	.3	18	50.1	196	6.0
New Haven	305	5.3	621	4.3	102	13.7	8 027	.9	15	3.7	257	.2
New London	344	7.6	2 960	.6	136	10.1	19 712	.2	33	24.3	946	2.9
Tolland	193	9.6	472	7.1	101	13.0	5 048	.7	33	28.4	201	20.7
Windham	286	9.0	731	5.7	139	12.0	4 212	.5	82	23.8	306	15.7
Geographic area	Farm production expenses ¹ —Con.											
	Repair and maintenance				Customwork, machine hire, and rental of machinery and equipment				Interest expense			
	Farms		Value		Farms		Value		Farms		Value	
	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)
Connecticut ..	2 919	2.1	14 857	1.6	542	8.4	1 592	3.8	878	5.4	10 443	2.0
Fairfield	193	8.1	620	11.8	41	37.6	65	39.5	52	23.1	619	.6
Hartford	532	4.0	2 983	2.6	98	19.4	271	5.3	177	11.6	2 515	2.4
Litchfield	542	3.6	2 233	5.3	94	21.9	176	10.1	146	13.0	1 520	10.9
Middlesex	202	9.1	656	7.1	35	37.7	124	7.7	48	31.7	387	7.5
New Haven	361	3.3	1 527	4.3	40	26.9	134	30.8	63	15.4	1 104	1.5
New London	467	4.4	3 439	2.1	110	17.2	491	5.5	182	12.2	2 310	3.7
Tolland	259	7.2	1 395	3.8	44	24.2	167	2.3	41	18.8	569	6.5
Windham	363	5.1	2 003	6.1	80	19.9	165	3.6	169	12.5	1 421	3.4
Geographic area	Farm production expenses ¹ —Con.											
	Cash rent				Property taxes paid				All other farm production expenses			
	Farms		Value		Farms		Value		Farms		Value	
	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)
Connecticut ..	893	5.3	4 052	3.4	3 202	1.6	10 511	3.1	3 042	1.8	54 415	.5
Fairfield	14	6.0	48	5.4	221	4.3	953	20.2	237	1.8	1 109	4.1
Hartford	220	9.9	1 389	5.8	576	2.8	2 513	4.1	566	2.9	13 292	.9
Litchfield	137	13.0	673	4.5	578	1.7	2 001	9.3	535	3.6	3 572	3.3
Middlesex	47	36.5	100	3.7	254	2.1	662	10.4	221	7.1	8 200	.4
New Haven	152	12.4	376	19.1	332	4.4	1 097	5.7	329	3.3	6 189	1.2
New London	125	13.7	422	6.5	515	2.7	1 583	3.6	481	4.3	15 726	.5
Tolland	59	18.1	558	3.8	302	3.2	732	7.9	272	6.6	2 451	3.1
Windham	139	13.8	486	13.8	424	2.3	970	6.4	401	4.1	3 875	3.2
Geographic area	Net cash return from agricultural sales for the farm unit (see text) ¹				Total cropland				Harvested cropland			
	Farms		Value		Farms		Acres		Farms		Acres	
	Number	Relative standard error of estimate (percent)	Total (\$1,000)	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)
	Connecticut ..	3 426	1.3	53 863	2.0	3 058	1.2	192 756	.6	2 789	1.2	143 782
Fairfield	240	1.8	677	45.9	207	1.6	5 000	4.0	174	1.9	3 004	3.1
Hartford	628	1.3	19 909	3.1	590	1.2	35 444	.9	547	1.2	26 966	1.0
Litchfield	606	1.2	4 395	11.9	554	1.2	47 781	1.0	513	1.2	35 185	.9
Middlesex	256	2.1	1 926	6.9	231	1.6	10 363	2.1	192	1.8	7 161	2.2
New Haven	380	1.5	6 201	6.4	336	1.3	16 663	1.7	318	1.4	11 925	1.6
New London	552	1.4	12 177	3.1	480	1.3	28 385	1.0	431	1.4	20 855	1.0
Tolland	326	1.6	2 732	8.9	287	1.4	19 619	1.1	269	1.5	14 916	1.0
Windham	438	1.2	5 847	4.3	373	1.2	29 501	1.1	345	1.2	23 770	.9

See footnotes at end of table.

Table F. Reliability Estimates for the State and County Totals: 1992 – Con.

[For meaning of abbreviations and symbols, see introductory text]

Geographic area	Irrigated land				Livestock and poultry							
	Farms		Acres		Cattle and calves inventory				Beef cows inventory			
	Farms		Acres		Farms		Total		Farms		Total	
	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)
Connecticut --	524	1.5	5 893	.7	1 345	1.2	78 044	.5	770	1.6	6 878	2.1
Fairfield	62	3.4	244	2.2	51	4.3	1 269	4.5	33	5.7	338	8.7
Hartford	149	2.4	3 049	.7	180	2.4	6 000	2.0	110	3.3	1 040	5.3
Litchfield	69	3.5	216	3.6	270	1.7	17 138	.9	142	2.8	1 385	4.3
Middlesex	30	4.8	931	.4	115	2.7	3 120	1.9	70	3.9	470	5.0
New Haven	90	2.7	833	1.9	106	2.9	5 047	2.1	60	4.1	654	8.1
New London	41	4.2	285	1.5	259	1.7	15 042	.8	141	2.6	1 238	3.6
Tolland	40	4.6	227	9.2	148	2.2	13 569	.5	94	3.1	748	3.7
Windham	43	4.3	108	8.8	216	1.7	16 859	.8	120	2.6	1 005	5.5
Livestock and poultry – Con.												
Geographic area	Milk cows inventory				Hogs and pigs inventory				Sheep and lambs inventory			
	Farms		Total		Farms		Total		Farms		Total	
	Farms		Total		Farms		Total		Farms		Total	
	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)
Connecticut --	486	1.2	34 552	.4	293	2.2	5 588	3.6	312	2.3	7 501	3.8
Fairfield	16	6.7	390	6.3	22	7.4	163	12.8	23	7.2	595	9.9
Hartford	50	4.1	2 034	1.7	38	5.5	1 043	12.6	51	4.8	1 013	8.8
Litchfield	120	2.3	7 981	.9	42	5.3	887	5.1	71	3.9	2 620	7.5
Middlesex	38	4.5	1 117	2.0	41	4.9	523	5.0	29	6.2	338	8.1
New Haven	31	5.0	2 098	2.1	25	6.2	395	8.8	19	8.4	699	17.0
New London	101	2.1	6 690	.6	43	5.2	926	1.9	51	4.9	1 054	8.4
Tolland	49	3.1	6 078	.5	39	5.1	886	12.0	23	6.5	575	4.1
Windham	81	1.9	8 164	.6	43	4.5	765	10.5	45	4.9	607	8.3
Livestock and poultry – Con.												
Geographic area	Hens and pullets of laying age inventory				Broilers and other meat-type chickens sold							
	Farms		Total		Farms		Total					
	Farms		Total		Farms		Total					
	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)				
Connecticut --	380	2.2	3 665 628	–	42	4.5	943 569	3.3				
Fairfield	44	5.1	2 496	13.9	3	21.4	800	32.7				
Hartford	51	5.0	16 014	2.2	3	14.9	(D)	(D)				
Litchfield	78	3.9	(D)	(D)	6	12.4	279	16.9				
Middlesex	41	5.2	(D)	(D)	5	15.6	255	15.8				
New Haven	32	5.9	(D)	(D)	1	33.8	(D)	(D)				
New London	50	4.5	3 163 293	(L)	2	14.9	(D)	(D)				
Tolland	38	5.5	25 157	1.4	5	14.2	315	13.2				
Windham	46	4.6	337 757	(L)	17	6.0	625 085	4.6				
Selected crops harvested												
Geographic area	Corn for grain or seed				Corn for silage or green chop							
	Farms		Acres		Quantity		Farms		Acres		Quantity	
	Farms		Acres		Quantity		Farms		Acres		Quantity	
	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Bushels	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Tons, green	Relative standard error of estimate (percent)
Connecticut --	81	2.9	5 357	.8	630 547	.8	500	1.2	37 825	.4	689 551	.5
Fairfield	4	19.2	(D)	(D)	1 060	32.0	15	8.0	308	9.6	5 381	9.5
Hartford	17	6.6	1 137	1.8	140 066	1.3	61	3.6	2 815	2.0	53 980	2.0
Litchfield	22	4.3	2 397	1.2	301 309	1.4	104	2.4	7 614	1.0	119 291	1.0
Middlesex	3	19.4	(D)	(D)	(D)	(D)	28	5.5	963	3.3	16 910	3.3
New Haven	6	9.8	129	2.8	5 760	2.7	42	4.2	2 415	2.0	41 233	1.9
New London	12	8.0	291	6.7	25 558	5.6	89	1.8	7 485	1.1	143 145	1.5
Tolland	7	10.8	(D)	(D)	(D)	(D)	65	2.9	7 194	.5	141 880	.4
Windham	10	5.1	1 035	.3	120 819	.2	96	2.1	9 031	.6	167 731	.7

See footnotes at end of table.

Table F. Reliability Estimates for the State and County Totals: 1992 – Con.

[For meaning of abbreviations and symbols, see introductory text]

Geographic area	Selected crops harvested – Con.											
	Irish potatoes					Hay – alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text)						
	Farms		Acres		Quantity		Farms		Acres		Quantity	
	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Hundredweight	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Tons, dry	Relative standard error of estimate (percent)
Connecticut --	47	4.6	279	4.9	57 401	7.4	1 752	1.2	81 281	.9	176 190	.8
Fairfield	1	42.9	(D)	(D)	(D)	(D)	61	4.0	1 841	5.4	3 654	6.2
Hartford	10	9.7	244	5.3	52 078	7.9	268	2.0	9 392	2.6	19 106	2.4
Litchfield	7	7.8	3	8.3	239	9.2	369	1.5	24 688	1.2	55 729	1.1
Middlesex	3	17.6	3	21.1	160	28.5	127	2.6	4 924	3.0	9 124	2.2
New Haven	7	11.7	9	8.4	1 695	9.2	156	2.4	7 010	2.5	13 443	3.4
New London	11	9.6	8	13.0	351	11.7	320	1.6	12 715	1.4	28 322	1.2
Tolland	5	15.2	12	36.9	(D)	(D)	200	1.8	7 139	2.0	14 517	2.4
Windham	3	22.0	(D)	(D)	(D)	(D)	251	1.6	13 572	1.5	32 295	1.5

Geographic area	Selected crops harvested – Con.							
	Vegetables harvested for sale (see text)				Land in orchards			
	Farms		Acres		Farms		Acres	
	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)	Number	Relative standard error of estimate (percent)
Connecticut --	579	1.5	9 994	.9	332	2.1	4 481	1.5
Fairfield	44	4.4	382	4.1	31	5.8	339	5.3
Hartford	170	2.4	5 572	.9	70	4.1	1 262	3.2
Litchfield	84	3.4	815	4.6	59	4.5	455	5.4
Middlesex	28	5.8	187	6.7	20	7.5	429	4.5
New Haven	94	2.7	1 628	1.7	38	4.6	813	2.1
New London	66	3.8	598	3.9	39	5.3	279	3.5
Tolland	43	4.4	401	3.3	31	5.7	253	5.3
Windham	50	4.1	412	4.2	44	4.5	652	2.9

¹Data are based on a sample of farms.

Table G. New England States' Estimates of the Not on the Mail List Component of Farm Coverage Error: 1992

[Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text]

Item	Census published farms		Not on mail list ¹		Percent not on mail list ¹	
	Total (number)	Relative standard error of estimate (percent)	Total (number)	Relative standard error of estimate (percent)	Total (percent)	Standard error of percent
Farms ----- number	22 991	.4	5 422	12.5	19.1	2.0
Land in farms ----- acres ..	3 857 438	.3	314 720	21.7	7.5	1.4
Average size of farm ----- acres ..	167.8	.5	58.0	16.8	(X)	(X)
Farms by size:						
Less than 10 acres -----	2 843	.8	1 229	29.5	30.2	6.6
10 to 49 acres -----	5 597	.6	2 491	18.7	30.8	4.0
Less than 50 acres -----	8 440	.6	3 720	15.3	30.6	3.3
50 acres or more -----	14 551	.4	1 702	22.2	10.5	2.1
50 to 99 acres -----	3 800	.6	688	37.4	15.3	5.1
100 to 179 acres -----	3 874	.6	674	32.6	14.8	4.2
180 acres or more -----	6 877	.4	339	48.6	4.7	2.1
Harvested cropland ----- farms ..	19 644	.4	3 927	14.9	16.7	2.1
----- acres ..	1 312 694	.2	63 683	19.9	4.6	.9
Farms by value of sales:						
Less than \$1,000 -----	3 770	.8	2 192	20.0	36.8	4.7
\$1,000 to \$2,499 -----	3 041	.8	1 238	29.1	28.9	5.8
Less than \$2,500 -----	6 811	.7	3 431	16.0	33.5	3.6
\$2,500 or more -----	16 180	.4	1 991	19.8	11.0	1.9
\$2,500 to \$9,999 -----	5 776	.6	1 218	25.8	17.4	3.7
\$10,000 or more -----	10 404	.3	773	34.7	6.9	2.3
Market value of agricultural products sold -----\$1,000 --	1 686 781	.1	27 166	30.0	1.6	.5
Farms by standard industrial classification:						
Crops (01) -----	12 093	.5	2 221	19.3	15.5	2.5
Livestock (02) -----	10 898	.4	3 201	17.2	22.7	3.1
Farms by type of organization:						
Individual or family -----	19 403	.4	4 857	13.0	20.0	2.1
Partnership or corporation -----	3 368	.5	460	50.0	12.0	5.0
Other -----	220	1.8	--	(X)	--	(X)
Farms by tenure of operator:						
Full owners -----	14 362	.5	3 963	15.0	21.6	2.6
Part owners and tenants -----	8 629	.4	1 457	23.3	14.4	2.8
Part owners -----	7 037	.4	1 148	25.8	14.0	3.0
Tenants -----	1 592	.8	309	48.2	16.2	6.7
Operators by place of residence:						
On farm operated -----	18 979	.4	4 837	13.2	20.3	2.2
Not on farm operated -----	2 824	.6	281	45.6	9.1	3.8
Not reported -----	1 188	.9	303	61.6	20.3	9.5
Operators by principal occupation:						
Farming -----	12 774	.4	1 971	23.6	13.4	2.8
Other -----	10 217	.6	2 925	17.3	22.3	3.0
Operators by sex:						
Male -----	19 820	.4	4 825	13.1	19.6	2.1
Female -----	3 171	.7	597	34.5	15.9	4.6
Operators by race:						
White -----	22 909	.4	4 895	13.3	17.6	1.9
Black and other races -----	82	3.6	--	(X)	--	(X)
Operators by years on present farm:						
4 years or less -----	2 150	.9	1 129	29.7	34.4	6.7
5 years or more -----	17 693	.4	3 339	15.7	15.9	2.2
Average years on present farm -----	19.6	.6	16.0	13.3	(X)	(X)
Not reported -----	3 148	.6	954	29.7	23.3	5.3
Average age of operator -----	53.2	.6	53.4	4.3	(X)	(X)

Note: These estimates do not account for incorrectly classified farms or farms appearing more than once in the census and are subject to change in the 1992 Coverage Evaluation publication. See appendix C text for further explanation.

Note: New England States include Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

¹Estimates are based on a sample survey conducted independently of census data collection.