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 ---- number	15.2
Land in farms ---- acres	10.3
Estimated market value of land and buildings[1] ---- $1,000	3.9
Market value of agricultural products sold ---- $1,000	3.4
Harvested cropland ---- acres	8.6
Corn for grain or seed ---- acres	5.5
Wheat for grain ---- acres	–
Livestock and poultry inventory:	
Cattle and calves ---- number	5.6
Hogs and pigs ---- number	9.0
Hens and pullets of laying age ---- number	1.2

[1]Data 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	5.5
50	3,8
75	3.1
100	2.6
150	2.1
200	1.7
300	1.3
500	.8
750	.3
1,000	.3
1,500	(X)
2,000	(X)
SAMPLE COUNT ITEM	
Number of farms reporting:	
25	39.2
50	27.0
75	21.4
100	17.9
150	13.7
200	10.9
300	7.2
500	5.6
750	4.6
1,000	3.9
1,500	(X)
2,000	(X)

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)
FARMS AND LAND IN FARMS		
Farms ---- number	5 258	.9
Land in farms ---- acres	526 440	.7
Average size of farm ---- acres	100	1.1
MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD		
Total sales (see text) ---- farms	5 258	.9
$1,000	350 639	.2
Average per farm ---- dollars	66 687	.9
Farms by value of sales:		
Less than $1,000 (see text) ---- farms	896	1.5
$1,000	243	2.0
$1,000 to $2,499 ---- farms	676	1.6
$1,000	1 095	1.7
$2,500 to $4,999 ---- farms	656	1.6
$1,000	2 322	1.6
$5,000 to $9,999 ---- farms	655	1.6
$1,000	4 648	1.6
$10,000 to $19,999 ---- farms	524	1.7
$1,000	7 265	1.7
$20,000 to $24,999 ---- farms	172	2.7
$1,000	3 793	2.7
$25,000 to $39,999 ---- farms	348	1.9
$1,000	10 886	1.9
$40,000 to $49,999 ---- farms	128	2.8
$1,000	5 695	2.9
$50,000 to $99,999 ---- farms	462	1.6
$1,000	32 826	1.6
$100,000 to $249,999 ---- farms	457	–
$1,000	70 812	–
$250,000 to $499,999 ---- farms	170	–
$1,000	58 495	–
$500,000 or more ---- farms	114	–
$1,000	152 559	–
Sales by commodity or commodity group:		
Crops, including nursery and greenhouse crops ---- farms	3 562	.9
$1,000	255 138	.2
Grains ---- farms	67	3.4
$1,000	907	2.7
Corn for grain ---- farms	49	3.9
$1,000	885	2.7
Wheat ---- farms	2	17.9
$1,000	(D)	(D)
Soybeans ---- farms	–	–
$1,000	–	–
Sorghum for grain ---- farms	–	–
$1,000	–	–
Barley ---- farms	2	24.1
$1,000	(D)	(D)
Oats ---- farms	7	11.0
$1,000	6	4.3
Other grains ---- farms	12	6.9
$1,000	15	6.4
Cotton and cottonseed ---- farms	–	–
$1,000	–	–
Tobacco ---- farms	27	4.5
$1,000	6 678	.3
Hay, silage, and field seeds ---- farms	1 393	1.2
$1,000	9 771	1.4
Vegetables, sweet corn, and melons ---- farms	994	1.1
$1,000	26 984	.8
Fruits, nuts, and berries ---- farms	1 160	1.0
$1,000	118 339	.2
Nursery and greenhouse crops ---- farms	920	1.2
$1,000	88 018	.3
Other crops ---- farms	116	2.6
$1,000	4 440	.9
Livestock, poultry, and their products ---- farms	2 214	1.0
$1,000	95 500	.3
Poultry and poultry products ---- farms	396	1.8
$1,000	12 298	.6
Dairy products ---- farms	475	1.0
$1,000	60 430	.4
Cattle and calves ---- farms	1 271	1.0
$1,000	10 070	.7
Hogs and pigs ---- farms	296	2.0
$1,000	2 342	2.4
Sheep, lambs, and wool ---- farms	466	1.9
$1,000	557	2.5
Other livestock and livestock products (see text) ---- farms	546	1.7
$1,000	9 802	.9
Value of agricultural products sold directly to individuals for human consumption (see text) ---- farms	1 080	1.2
$1,000	14 982	.6

Item	Total	Relative standard error of estimate (percent)
FARM PRODUCTION EXPENSES[1]		
Total farm production expenses ---- farms	5 258	.8
$1,000	266 163	.7
Average per farm ---- dollars	50 621	1.1
Livestock and poultry purchased ---- farms	1 257	5.5
$1,000	7 374	7.1
Feed for livestock and poultry ---- farms	2 202	3.3
$1,000	28 422	2.3
Commercially mixed formula feeds ---- farms	1 226	5.0
$1,000	19 940	2.4
Seeds, bulbs, plants, and trees ---- farms	1 924	3.4
$1,000	10 327	3.2
Commercial fertilizer ---- farms	3 481	2.1
$1,000	10 021	1.8
Agricultural chemicals ---- farms	2 337	2.9
$1,000	7 616	2.1
Petroleum products ---- farms	4 883	1.1
$1,000	12 906	1.6
Electricity ---- farms	3 674	2.1
$1,000	7 221	1.4
Hired farm labor ---- farms	1 847	3.2
$1,000	77 337	1.0
Contract labor ---- farms	775	5.8
$1,000	6 406	3.8
Repair and maintenance ---- farms	4 506	1.4
$1,000	18 080	1.7
Customwork, machine hire, and rental of machinery and equipment ---- farms	1 072	5.3
$1,000	4 035	3.2
Interest expense ---- farms	1 604	4.0
$1,000	14 502	3.1
Secured by real estate ---- farms	1 199	4.9
$1,000	11 690	3.7
Not secured by real estate ---- farms	751	6.2
$1,000	2 812	2.3
Cash rent ---- farms	1 047	5.1
$1,000	4 873	4.2
Property taxes ---- farms	4 840	1.1
$1,000	16 695	2.4
All other farm production expenses ---- farms	4 747	1.3
$1,000	40 348	1.3
NET CASH RETURN FROM AGRICULTURAL SALES FOR THE FARM UNIT (SEE TEXT) [1]		
All farms ---- number	5 258	.8
$1,000	77 725	2.1
Average per farm ---- dollars	14 782	2.2
Farms with net gains [2] ---- number	2 556	2.6
$1,000	97 366	1.2
Average net gain ---- dollars	38 093	2.8
Farms with net losses ---- number	2 702	2.5
$1,000	19 641	4.7
Average net loss ---- dollars	7 269	5.3
GOVERNMENT PAYMENTS AND OTHER FARM-RELATED INCOME		
Government payments ---- farms	477	1.2
$1,000	1 886	1.3
Other farm-related income [1] ---- farms	1 408	5.0
$1,000	6 416	6.5
Customwork and other agricultural services ---- farms	506	9.5
$1,000	2 494	9.5
Gross cash rent or share payments ---- farms	276	13.0
$1,000	486	19.0
Forest products and Christmas trees ---- farms	631	8.1
$1,000	2 478	11.4
Other farm-related income sources ---- farms	321	10.7
$1,000	958	11.9
COMMODITY CREDIT CORPORATION LOANS		
Total ---- farms	9	4.5
$1,000	140	(L)

See footnotes at end of table.

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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)
LAND IN FARMS ACCORDING TO USE			
Total cropland	farms	4 853	.9
	acres	235 284	.6
Harvested cropland	farms	4 417	.9
	acres	173 255	.6
Farms by acres harvested:			
1 to 9 acres	farms	1 755	1.2
	acres	(D)	(D)
10 to 19 acres	farms	733	1.4
	acres	9 865	1.4
20 to 29 acres	farms	453	1.6
	acres	10 481	1.6
30 to 49 acres	farms	521	1.5
	acres	19 212	1.5
50 to 99 acres	farms	497	1.3
	acres	33 602	1.3
100 to 199 acres	farms	293	1.2
	acres	39 262	1.2
200 to 499 acres	farms	143	1.0
	acres	39 429	1.0
500 to 999 acres	farms	21	–
	acres	13 792	–
1,000 acres or more	farms	1	–
	acres	(D)	(D)
Cropland:			
Pasture or grazing only	farms	1 813	1.0
	acres	45 142	1.0
Other cropland	farms	1 082	1.1
	acres	16 887	1.5
Total woodland	farms	3 032	.9
	acres	202 360	1.0
Pastureland and rangeland other than cropland and woodland pastured	farms	786	1.3
	acres	24 535	1.5
Land in house lots, ponds, roads, wasteland, etc.	farms	3 310	.9
	acres	64 261	.9
Irrigated land	farms	1 336	.9
	acres	19 909	.5
Acres irrigated:			
1 to 9 acres	farms	937	1.2
	acres	2 624	1.4
10 to 49 acres	farms	322	1.2
	acres	6 893	1.1
50 to 99 acres	farms	42	1.5
	acres	2 893	1.2
100 to 199 acres	farms	23	–
	acres	2 928	–
200 to 499 acres	farms	10	–
	acres	(D)	(D)
500 to 999 acres	farms	1	–
	acres	(D)	(D)
1,000 acres or more	farms	1	–
	acres	(D)	(D)
Harvested cropland irrigated	farms	1 327	.9
	acres	19 622	.5
Pasture and other land irrigated	farms	48	4.1
	acres	287	6.3
Land under federal acreage reduction programs:			
Diverted under annual commodity programs	farms	34	2.2
	acres	260	.6
Conservation Reserve or Wetlands Reserve Programs	farms	58	3.6
	acres	1 388	4.2
VALUE OF LAND AND BUILDINGS [1]			
Estimated market value of land and buildings	farms	5 258	.8
	$1,000	2 420 837	2.2
Average per farm	dollars	460 410	2.3
Average per acre	dollars	4 898	3.2
VALUE OF MACHINERY AND EQUIPMENT [1]			
Estimated market value of all machinery and equipment	farms	5 257	.8
	$1,000	191 141	1.7
Average per farm	dollars	36 359	1.8
AGRICULTURAL CHEMICALS [1]			
Commercial fertilizer	farms	3 424	2.1
	acres on which used	118 217	2.4

Item		Total	Relative standard error of estimate (percent)
TENURE OF OPERATOR			
All operators	farms	5 258	.9
	acres	526 440	.7
Full owners	farms	3 488	1.0
	acres	268 926	.9
Part owners	farms	1 331	1.0
	acres	220 346	.9
Tenants	farms	439	1.6
	acres	37 168	1.6
OWNED AND RENTED LAND			
Land owned	farms	4 823	.9
	acres	417 242	.8
Owned land in farms	farms	4 819	.9
	acres	406 735	.8
Land rented or leased from others	farms	1 777	1.0
	acres	120 572	.9
	landlords	4 884	.9
Rented or leased land in farms	farms	1 770	1.0
	acres	119 705	.9
Land rented or leased to others	farms	387	1.7
	acres	11 374	2.9
OPERATOR CHARACTERISTICS			
Operators by place of residence:			
On farm operated		4 115	.9
Not on farm operated		868	1.2
Not reported		275	1.9
Operators by principal occupation:			
Farming		2 926	.8
Other		2 332	1.2
Operators by days worked off farm:			
Any		2 695	1.1
200 days or more		1 666	1.2
Operators by sex:			
Male	farms	4 437	.9
	acres	476 440	.7
Female	farms	821	1.5
	acres	50 000	1.9
Average age of operator	years	53.8	1.2
FARMS BY TYPE OF ORGANIZATION			
Individual or family (sole proprietorship)	farms	4 232	.9
	acres	337 401	.9
Partnership	farms	401	1.7
	acres	70 194	1.3
Corporation:			
Family held	farms	488	1.2
	acres	(D)	(D)
More than 10 stockholders	farms	13	5.3
10 or less stockholders	farms	475	1.2
Other than family held	farms	61	2.8
	acres	(D)	(D)
More than 10 stockholders	farms	8	4.3
10 or less stockholders	farms	53	3.1
Other—cooperative, estate or trust, institutional, etc.	farms	76	3.1
	acres	24 633	1.9
HIRED FARM LABOR			
Hired workers by days worked:			
150 days or more	farms	1 085	4.0
	workers	4 024	1.8
Less than 150 days	farms	1 604	3.7
	workers	8 445	4.5
INJURIES AND DEATHS			
Farm-related injuries:			
Operator and family members	farms	44	3.6
	number	48	3.8
Hired workers	farms	95	1.7
	number	216	.8
Farm-related deaths:			
Operator and family members	farms	2	17.5
	number	(D)	(D)
Hired workers	farms	–	–
	number	–	–

See footnotes at end of table.

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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)
FARMS BY SIZE			
1 to 9 acres	farms	1 044	1.4
	acres	(D)	(D)
10 to 49 acres	farms	1 738	1.2
	acres	43 554	1.2
50 to 69 acres	farms	479	1.6
	acres	27 688	1.6
70 to 99 acres	farms	459	1.5
	acres	37 805	1.5
100 to 139 acres	farms	459	1.5
	acres	53 240	1.5
140 to 179 acres	farms	270	1.8
	acres	42 294	1.8
180 to 219 acres	farms	212	1.8
	acres	42 113	1.8
220 to 259 acres	farms	120	2.3
	acres	28 766	2.3
260 to 499 acres	farms	322	1.4
	acres	111 243	1.3
500 to 999 acres	farms	121	1.8
	acres	76 661	1.8
1,000 to 1,999 acres	farms	29	–
	acres	37 056	–
2,000 acres or more	farms	5	–
	acres	(D)	(D)
FARMS BY STANDARD INDUSTRIAL CLASSIFICATION			
Cash grains (011)	farms	14	7.5
	acres	2 652	5.1
Field crops, except cash grains (013)	farms	909	1.4
	acres	110 183	1.5
Vegetables and melons (016)	farms	602	1.4
	acres	36 591	1.4
Fruits and tree nuts (017)	farms	913	1.1
	acres	90 403	.8
Horticultural specialties (018)	farms	702	1.4
	acres	19 792	1.8
General farms, primarily crop (019)	farms	182	2.5
	acres	14 355	3.5
Livestock, except dairy, poultry, and animal specialties (021)	farms	860	1.4
	acres	90 456	1.6
Dairy farms (024)	farms	434	1.0
	acres	130 624	.8
Poultry and eggs (025)	farms	108	2.8
	acres	5 822	3.7
Animal specialties (027)	farms	485	1.8
	acres	19 712	3.0
General farms, primarily livestock and animal specialties (029)	farms	49	4.7
	acres	5 850	5.7
LIVESTOCK			
Cattle and calves inventory	farms	1 565	1.0
	number	68 331	.5
Beef cows	farms	850	1.3
	number	7 347	1.6
Milk cows	farms	606	1.1
	number	30 906	.4
Cattle and calves sold	farms	1 271	1.0
	number	29 839	.7
	$1,000	10 070	.7
Hogs and pigs inventory	farms	404	1.7
	number	16 439	2.6
Hogs and pigs sold	farms	296	2.0
	number	25 564	2.8
	$1,000	2 342	2.4
Sheep and lambs of all ages inventory	farms	520	1.7
	number	11 341	2.3
Sheep and lambs sold	farms	410	1.9
	number	8 846	2.7
Horses and ponies inventory	farms	1 180	1.3
	number	9 017	1.7
Horses and ponies sold	farms	274	2.3
	number	693	3.2
POULTRY			
Chickens 3 months old or older inventory	farms	535	1.6
	number	544 401	.3
Hens and pullets of laying age	farms	529	1.6
	number	488 944	.4
Broilers and other meat-type chickens sold	farms	45	4.8
	number	125 283	11.1
CROPS HARVESTED			
Corn for silage or green chop	farms	531	1.1
	acres	25 861	.7
	tons, green	470 201	.6
Irish potatoes	farms	102	2.8
	acres	3 520	1.1
	cwt	812 469	1.3
Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text)	farms	2 269	1.0
	acres	103 596	.8
	tons, dry	213 589	.8
Vegetables harvested for sale (see text)	farms	995	1.1
	acres	16 577	.9
Land in orchards	farms	525	1.5
	acres	7 848	1.5

[1]Data are based on a sample of farms.
[2]Farms with total production expenses equal to market value of agricultural products sold are included as farms with gains of less than $1,000.

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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)
FARMS AND LAND IN FARMS		
Farms — number	2 375	.8
Land in farms — acres	345 095	.6
Average size of farm — acres	145	1.0
MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD		
Total sales (see text) — farms	2 375	.8
$1,000	342 331	.2
Average per farm — dollars	144 139	.9
Farms by value of sales:		
$10,000 to $19,999 — farms	524	1.7
$1,000	7 265	1.7
$20,000 to $24,999 — farms	172	2.7
$1,000	3 793	2.7
$25,000 to $39,999 — farms	348	1.9
$1,000	10 886	1.9
$40,000 to $49,999 — farms	128	2.8
$1,000	5 695	2.9
$50,000 to $99,999 — farms	462	1.6
$1,000	32 826	1.6
$100,000 to $249,999 — farms	457	–
$1,000	70 812	–
$250,000 to $499,999 — farms	170	–
$1,000	58 495	–
$500,000 or more — farms	114	–
$1,000	152 559	–
Sales by commodity or commodity group:		
Crops, including nursery and greenhouse crops — farms	1 926	.9
$1,000	249 775	.2
Grains — farms	43	3.8
$1,000	(D)	(D)
Corn for grain — farms	32	4.4
$1,000	857	2.8
Wheat — farms	1	–
$1,000	(D)	(D)
Soybeans — farms	–	–
$1,000	–	–
Sorghum for grain — farms	–	–
$1,000	–	–
Barley — farms	2	24.1
$1,000	(D)	(D)
Oats — farms	2	–
$1,000	(D)	(D)
Other grains — farms	10	7.4
$1,000	(D)	(D)
Cotton and cottonseed — farms	–	–
$1,000	–	–
Tobacco — farms	25	4.5
$1,000	(D)	(D)
Hay, silage, and field seeds — farms	525	1.4
$1,000	7 565	1.6
Vegetables, sweet corn, and melons — farms	645	1.2
$1,000	25 866	.8
Fruits, nuts, and berries — farms	772	1.0
$1,000	117 346	.2
Nursery and greenhouse crops — farms	629	1.2
$1,000	87 077	.3
Other crops — farms	86	2.7
$1,000	4 375	.9
Livestock, poultry, and their products — farms	910	1.0
$1,000	92 556	.3
Poultry and poultry products — farms	130	2.4
$1,000	12 143	.6
Dairy products — farms	444	1.0
$1,000	60 340	.4
Cattle and calves — farms	662	1.0
$1,000	8 804	.8
Hogs and pigs — farms	121	2.6
$1,000	2 066	2.6
Sheep, lambs, and wool — farms	96	2.7
$1,000	204	4.2
Other livestock and livestock products (see text) — farms	156	2.3
$1,000	8 999	.9
Value of agricultural products sold directly to individuals for human consumption (see text) — farms	486	1.4
$1,000	13 944	.6

Item	Total	Relative standard error of estimate (percent)
FARM PRODUCTION EXPENSES[1]		
Total farm production expenses — farms	2 331	1.4
$1,000	245 250	.7
Average per farm — dollars	105 212	1.6
Livestock and poultry purchased — farms	496	7.8
$1,000	6 297	7.7
Feed for livestock and poultry — farms	806	5.3
$1,000	26 316	2.4
Commercially mixed formula feeds — farms	562	5.7
$1,000	19 317	2.4
Seeds, bulbs, plants, and trees — farms	1 245	3.6
$1,000	10 167	3.2
Commercial fertilizer — farms	1 952	2.1
$1,000	9 265	1.9
Agricultural chemicals — farms	1 615	2.8
$1,000	7 392	2.1
Petroleum products — farms	2 247	1.5
$1,000	11 401	1.7
Electricity — farms	1 847	2.5
$1,000	6 524	1.3
Hired farm labor — farms	1 388	3.1
$1,000	76 404	1.0
Contract labor — farms	544	5.8
$1,000	6 207	3.9
Repair and maintenance — farms	2 150	1.7
$1,000	14 917	1.5
Customwork, machine hire, and rental of machinery and equipment — farms	652	5.5
$1,000	3 691	3.1
Interest expense — farms	1 120	4.0
$1,000	13 188	3.1
Secured by real estate — farms	831	5.0
$1,000	10 604	3.7
Not secured by real estate — farms	540	6.4
$1,000	2 584	1.9
Cash rent — farms	758	5.1
$1,000	4 610	4.3
Property taxes — farms	2 153	1.7
$1,000	10 485	2.0
All other farm production expenses — farms	2 328	1.4
$1,000	38 388	1.4
NET CASH RETURN FROM AGRICULTURAL SALES FOR THE FARM UNIT (SEE TEXT) [1]		
All farms — number	2 331	1.4
$1,000	90 451	1.5
Average per farm — dollars	38 803	2.1
Farms with net gains [2] — number	1 883	2.4
$1,000	95 809	1.2
Average net gain — dollars	50 881	2.7
Farms with net losses — number	448	9.2
$1,000	5 358	8.1
Average net loss — dollars	11 961	12.3
GOVERNMENT PAYMENTS AND OTHER FARM-RELATED INCOME		
Government payments — farms	344	1.1
$1,000	1 735	1.3
Other farm-related income [1] — farms	584	6.7
$1,000	4 337	7.7
Customwork and other agricultural services — farms	181	14.4
$1,000	1 939	10.8
Gross cash rent or share payments — farms	94	18.2
$1,000	254	25.3
Forest products and Christmas trees — farms	279	11.2
$1,000	1 621	13.2
Other farm-related income sources — farms	181	11.0
$1,000	522	10.2
COMMODITY CREDIT CORPORATION LOANS		
Total — farms	8	–
$1,000	(D)	(D)

See footnotes at end of table.

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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)
LAND IN FARMS ACCORDING TO USE			
Total cropland	farms	2 303	.8
	acres	174 659	.6
Harvested cropland	farms	2 243	.8
	acres	137 323	.6
Cropland:			
Pasture or grazing only	farms	646	1.1
	acres	(D)	(D)
Total woodland	farms	1 283	.9
	acres	111 087	1.0
Pastureland and rangeland other than cropland and woodland pastured	farms	290	1.6
	acres	15 193	1.3
Land in house lots, ponds, roads, wasteland, etc.	farms	1 472	.9
	acres	44 156	.6
Irrigated land	farms	1 044	.9
	acres	19 007	.4
Harvested cropland irrigated	farms	1 041	.9
	acres	18 836	.4
Pasture and other land irrigated	farms	29	4.1
	acres	171	2.5
Land under federal acreage reduction programs:			
Diverted under annual commodity programs	farms	34	2.2
	acres	260	.6
Conservation Reserve or Wetlands Reserve Programs	farms	35	3.7
	acres	816	1.4
VALUE OF LAND AND BUILDINGS [1]			
Estimated market value of land and buildings	farms	2 331	1.4
	$1,000	1 477 935	2.1
Average per farm	dollars	634 035	2.5
Average per acre	dollars	4 720	3.1
VALUE OF MACHINERY AND EQUIPMENT [1]			
Estimated market value of all machinery and equipment	farms	2 330	1.4
	$1,000	144 563	1.8
Average per farm	dollars	62 044	2.3
AGRICULTURAL CHEMICALS[1]			
Commercial fertilizer	farms	1 928	2.1
	acres on which used	100 397	2.4
TENURE OF OPERATOR			
All operators	farms	2 375	.8
	acres	345 095	.6
Full owners	farms	1 273	1.0
	acres	136 208	.9
Part owners	farms	833	1.0
	acres	177 980	.8
Tenants	farms	269	1.7
	acres	30 907	1.5
OWNED AND RENTED LAND			
Land owned	farms	2 109	.8
	acres	251 210	.7
Owned land in farms	farms	2 106	.8
	acres	246 584	.7
Land rented or leased from others	farms	1 105	1.0
	acres	99 066	.8
	landlords	3 613	.9
Rented or leased land in farms	farms	1 102	1.0
	acres	98 511	.8
Land rented or leased to others	farms	164	2.1
	acres	5 181	4.8
OPERATOR CHARACTERISTICS			
Operators by place of residence:			
On farm operated		1 691	.9
Not on farm operated		566	1.2
Not reported		118	2.2
Operators by principal occupation:			
Farming		1 810	.8
Other		565	1.6
Operators by days worked off farm:			
Any		881	1.3
200 days or more		428	1.7
Operators by sex:			
Male		2 136	.8
Female		239	2.0
Average age of operator	years	52.6	1.2

Item		Total	Relative standard error of estimate (percent)
FARMS BY TYPE OF ORGANIZATION			
Individual or family (sole proprietorship)	farms	1 631	1.0
	acres	186 660	1.0
Partnership	farms	286	1.6
	acres	62 161	1.4
Corporation:			
Family held	farms	380	1.0
	acres	66 967	.5
More than 10 stockholders	farms	9	–
10 or less stockholders	farms	371	1.0
Other than family held	farms	46	2.6
	acres	14 612	.3
More than 10 stockholders	farms	7	–
10 or less stockholders	farms	39	3.0
Other—cooperative, estate or trust, institutional, etc.	farms	32	3.0
	acres	14 695	2.3
HIRED FARM LABOR			
Hired workers by days worked:			
150 days or more	farms	917	3.7
	workers	3 828	1.7
Less than 150 days	farms	1 163	3.8
	workers	7 606	4.8
INJURIES AND DEATHS			
Farm-related injuries:			
Operator and family members	farms	28	2.6
	number	32	3.7
Hired workers	farms	82	1.1
	number	203	.6
Farm-related deaths:			
Operator and family members	farms	1	–
	number	(D)	(D)
Hired workers	farms	–	–
	number	–	–
FARMS BY SIZE			
1 to 9 acres		411	1.7
10 to 49 acres		608	1.4
50 to 69 acres		194	2.1
70 to 99 acres		192	1.8
100 to 139 acres		224	1.8
140 to 179 acres		145	2.0
180 to 219 acres		137	1.9
220 to 259 acres		82	2.5
260 to 499 acres		250	1.3
500 to 999 acres		103	1.5
1,000 to 1,999 acres		24	–
2,000 acres or more		5	–
FARMS BY STANDARD INDUSTRIAL CLASSIFICATION			
Cash grains (011)		7	8.9
Field crops, except cash grains (013)		243	2.1
Vegetables and melons (016)		371	1.6
Fruits and tree nuts (017)		574	1.1
Horticultural specialties (018)		469	1.4
General farms, primarily crop (019)		38	4.1
Livestock, except dairy, poultry, and animal specialties (021)		130	2.7
Dairy farms (024)		420	1.0
Poultry and eggs (025)		50	3.4
Animal specialties (027)		58	3.8
General farms, primarily livestock and animal specialties (029)		15	7.6
LIVESTOCK			
Cattle and calves inventory	farms	709	1.0
	number	58 526	.5
Beef cows	farms	239	2.0
	number	3 323	2.5
Milk cows	farms	468	1.0
	number	30 598	.4
Cattle and calves sold	farms	662	1.0
	number	26 422	.7
	$1,000	8 804	.8
Hogs and pigs inventory	farms	143	2.3
	number	13 721	3.0
Hogs and pigs sold	farms	121	2.6
	number	22 201	3.1
	$1,000	2 066	2.6
Sheep and lambs of all ages inventory	farms	115	2.5
	number	3 394	3.3
Sheep and lambs sold	farms	79	2.9
	number	3 134	4.3
Horses and ponies inventory	farms	243	1.9
	number	1 701	3.0
Horses and ponies sold	farms	64	4.0
	number	278	6.1

See footnotes at end of table.

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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)
POULTRY		
Chickens 3 months old or older inventory ---- farms	142	2.3
number	533 294	.3
Hens and pullets of laying age ---- farms	140	2.3
number	478 733	.4
Broilers and other meat-type chickens sold ---- farms	18	7.0
number	123 829	11.2
CROPS HARVESTED		
Corn for silage or green chop ---- farms	401	1.1
acres	24 381	.7
tons, green	449 097	.6
CROPS HARVESTED—Con.		
Irish potatoes ---- farms	75	2.9
acres	3 479	1.1
cwt	805 265	1.3
Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text) ---- farms	902	1.0
acres	71 838	.9
tons, dry	165 475	.9
Vegetables harvested for sale (see text) ---- farms	645	1.2
acres	15 510	.9
Land in orchards ---- farms	226	1.7
acres	6 449	1.0

[1]Data are based on a sample of farms.
[2]Farms with total production expenses equal to market value of agricultural products sold are included as farms with gains of less than $1,000.

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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	–15.4	1.7	–5.0	1.4
Land in farms—acres	–14.4	1.3	–9.6	1.0
Average size of farm—acres	1.0	2.6	–5.2	1.7
Estimated market value of land and buildings [1]:				
Average per farm—dollars	32.9	5.1	23.8	4.2
Average per acre—dollars	37.9	6.4	39.2	6.0
Estimated market value of all machinery and equipment [1]:				
Average per farm—dollars	13.5	3.7	9.5	3.6
Farms by size:				
1 to 9 acres	–5.5	2.2	19.5	2.6
10 to 49 acres	–18.2	2.1	–9.5	2.0
50 to 179 acres	–17.3	1.9	–4.8	1.8
180 to 499 acres	–19.6	1.6	–15.8	1.4
500 to 999 acres	–4.0	2.6	–	2.2
1,000 to 1,999 acres	11.5	–	–4.0	–
2,000 acres or more	–	–	–	–
Total cropland—farms	–14.2	1.7	–3.5	1.4
acres	–13.7	1.2	–10.4	1.0
Harvested cropland—farms	–13.1	1.7	–2.4	1.4
acres	–11.1	1.2	–7.6	1.0
Irrigated land—farms	1.5	1.6	8.5	1.5
acres	–1.2	.8	1.2	.8
Market value of agricultural products sold—$1,000	3.0	.5	3.5	.4
Average per farm—dollars	21.8	2.6	8.9	1.6
Crops, including nursery and greenhouse crops—$1,000	18.2	.5	19.0	.4
Livestock, poultry, and their products—$1,000	–23.4	.5	–23.3	.4
Farms by value of sales:				
Less than $2,500	–27.5	1.7	(X)	(X)
$2,500 to $4,999	–21.0	2.3	(X)	(X)
$5,000 to $9,999	–9.0	2.6	(X)	(X)
$10,000 to $24,999	–9.6	2.3	–9.6	2.3
$25,000 to $49,999	–3.6	2.7	–3.6	2.7
$50,000 to $99,999	–10.3	2.2	–10.3	2.2
$100,000 to $249,999	–3.8	.1	–3.8	.1
$250,000 to $499,999	14.9	–	14.9	–
$500,000 or more	17.5	–	17.5	–
Total farm production expenses [1]—$1,000	5.8	1.2	8.2	1.7
Average per farm—dollars	25.1	2.9	15.6	2.5
Net cash return from agricultural sales for the farm unit (see text) [1]—farms	–15.4	1.7	–6.4	1.8
$1,000	–7.7	2.8	–8.8	2.0
Average per farm—dollars	9.2	4.0	–2.5	2.9
Operators by principal occupation:				
Farming	–7.8	1.5	–5.6	1.3
Other	–23.3	2.1	–2.8	2.4
Operators by days worked off farm:				
Any	–23.4	3.9	–7.9	4.8
200 days or more	–27.0	3.8	–5.1	5.0
Livestock and poultry:				
Cattle and calves inventory—farms	–25.9	1.7	–15.0	1.5
number	–17.7	.9	–16.9	.8
Beef cows—farms	–24.4	2.1	–7.7	2.8
number	–24.2	2.2	–20.3	3.0
Milk cows—farms	–27.7	1.4	–21.1	1.4
number	–16.3	.8	–15.7	.8
Cattle and calves sold—farms	–26.3	1.6	–17.7	1.5
number	–24.8	1.0	–23.3	1.0
Hogs and pigs inventory—farms	–18.9	2.6	–14.9	3.0
number	–36.3	2.2	–37.1	2.3
Hogs and pigs sold—farms	–23.5	2.6	–15.4	3.3
number	–36.2	2.1	–36.5	2.3
Sheep and lambs inventory—farms	–13.9	2.9	5.5	4.4
number	–23.2	2.9	–34.4	4.0
Chickens 3 months old or older inventory—farms	–27.5	2.2	–31.7	2.3
number	–63.8	.2	–64.1	.2
Broilers and other meat-type chickens sold—farms	21.6	9.9	200.0	34.9
number	(D)	(D)	(D)	(D)
Selected crops harvested:				
Corn for grain or seed—farms	–27.0	3.0	–18.9	3.4
acres	–13.9	2.1	–11.5	2.2
bushels	–22.0	1.9	–19.1	2.0
Corn for silage or green chop—farms	–12.1	1.7	–14.3	1.5
acres	–9.7	1.0	–10.3	.9
tons, green	–10.4	.8	–10.4	.8
Irish potatoes—farms	9.7	4.6	2.7	4.4
acres	33.9	3.0	34.4	3.1
cwt	32.0	2.5	32.2	2.6
Hay—alfalfa, other tame, small grain, wild, grass silage, green chop, etc. (see text)—farms	–21.1	1.9	–6.9	1.7
acres	–14.7	1.5	–10.7	1.4
tons, dry	–14.8	1.4	–12.7	1.4
Vegetables harvested for sale (see text)—farms	–1.3	2.0	3.7	2.0
acres	1.5	1.6	3.0	1.6
Land in orchards—farms	–8.2	2.4	–8.5	2.5
acres	–16.3	1.8	–18.2	1.5

[1] Data are based on a sample of farms.

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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)
Massachusetts	**5 258**	**.9**	**526 440**	**.7**	**100**	**1.1**	**460 410**	**2.3**	**191 141**	**1.7**
Barnstable	144	.8	5 340	3.5	37	3.6	386 004	6.1	4 716	4.4
Berkshire	320	.9	60 980	1.2	191	1.5	515 652	8.5	12 472	6.5
Bristol	523	.9	34 235	1.3	65	1.6	447 338	9.2	16 461	3.0
Dukes	56	1.3	5 757	3.3	103	3.5	973 386	6.1	1 170	5.1
Essex	357	.9	25 470	2.2	71	2.4	781 091	8.4	13 721	11.2
Franklin	519	.8	74 484	1.1	144	1.4	382 114	8.3	20 052	3.2
Hampden	410	.9	37 477	1.7	91	2.0	295 835	6.2	11 056	7.7
Hampshire	527	.7	53 459	1.5	101	1.7	325 006	6.9	17 273	6.1
Middlesex	535	1.0	31 583	1.5	59	1.8	402 629	8.1	16 976	5.2
Nantucket	14	1.2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Norfolk	186	.8	9 882	2.6	53	2.7	454 263	15.8	4 737	6.6
Plymouth	668	.8	72 247	.7	108	1.1	643 763	2.9	40 411	2.4
Suffolk	2	–	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Worcester	997	1.0	114 805	1.2	115	1.5	403 851	4.4	31 292	4.9

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]			
							Total farm production expenses			
							Farms		Value	
	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)	Number	Relative standard error of estimate (percent)	Total ($1,000)	Relative standard error of estimate (percent)
Massachusetts	**36 359**	**1.8**	**350 639**	**.2**	**66 687**	**.9**	**5 258**	**.8**	**266 163**	**.7**
Barnstable	32 301	4.9	8 700	.9	60 415	1.2	146	2.1	5 958	2.2
Berkshire	39 098	6.6	17 967	.5	56 145	1.0	319	1.1	15 973	5.2
Bristol	31 595	3.2	29 614	.4	56 624	1.0	522	1.0	22 515	2.3
Dukes	20 897	6.8	849	2.7	15 163	3.0	56	4.5	1 010	3.0
Essex	38 328	11.3	17 769	.7	49 774	1.2	358	1.1	13 696	3.7
Franklin	38 635	3.3	30 028	.5	57 857	.9	519	.9	27 153	2.4
Hampden	27 033	7.8	18 947	.5	46 211	1.0	409	1.0	15 559	4.1
Hampshire	32 839	6.1	24 794	.5	47 048	.9	526	.9	19 857	2.7
Middlesex	31 731	5.3	44 882	.3	83 892	1.0	535	1.1	31 243	1.1
Nantucket	(D)	(D)	(D)	(D)	(D)	(D)	14	5.5	(D)	(D)
Norfolk	25 329	6.8	8 928	.9	48 002	1.2	187	1.3	7 236	2.4
Plymouth	60 495	2.5	95 756	.2	143 347	.9	668	.9	61 881	1.2
Suffolk	(D)	(D)	(D)	(D)	(D)	(D)	2	–	(D)	(D)
Worcester	31 386	5.0	49 636	.4	49 785	1.1	997	1.0	41 582	1.3

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)	Relative standard error of estimate (percent)
Massachusetts	**1 257**	**5.5**	**7 374**	**7.1**	**2 202**	**3.3**	**28 422**	**2.3**	**1 924**	**3.4**	**10 327**	**3.2**
Barnstable	13	22.4	37	15.2	16	21.8	(D)	(D)	43	11.6	142	10.0
Berkshire	115	15.7	529	16.4	229	9.2	4 387	2.6	138	16.2	582	51.7
Bristol	179	14.4	1 766	23.7	251	9.3	2 782	10.4	229	10.5	838	5.7
Dukes	10	9.5	18	35.4	27	6.4	58	4.8	23	6.6	32	2.6
Essex	65	22.0	271	37.8	134	12.8	1 538	8.9	155	9.0	797	5.0
Franklin	168	15.6	587	6.1	298	8.3	4 679	6.6	220	9.2	995	10.7
Hampden	90	21.5	293	23.1	175	13.7	1 537	16.6	145	13.2	840	1.3
Hampshire	121	17.8	689	31.1	210	12.1	2 742	9.1	276	8.7	860	2.9
Middlesex	104	21.3	854	5.8	184	12.7	1 620	6.0	198	13.5	2 109	.7
Nantucket	–	–	–	–	1	34.7	(D)	(D)	8	8.4	(D)	(D)
Norfolk	49	26.2	115	11.7	103	10.8	385	14.2	64	18.7	580	1.2
Plymouth	91	20.3	306	38.0	162	10.2	878	14.6	117	10.9	627	1.8
Suffolk	–	–	–	–	–	–	–	–	2	–	(D)	(D)
Worcester	252	12.4	1 908	5.7	412	7.8	7 760	3.2	306	7.6	1 766	1.5

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)	Relative standard error of estimate (percent)
Massachusetts	**3 481**	**2.1**	**10 021**	**1.8**	**2 337**	**2.9**	**7 616**	**2.1**	**4 883**	**1.1**	**12 906**	**1.6**
Barnstable	128	2.7	173	5.3	104	4.9	219	3.0	142	2.1	280	4.8
Berkshire	164	13.2	472	2.8	101	18.3	167	2.8	303	3.5	692	9.3
Bristol	357	6.2	789	3.7	270	9.8	492	7.5	500	2.6	1 377	7.7

See footnotes at end of table.

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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.											
	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)	Relative standard error of estimate (percent)
Dukes	43	5.1	55	5.2	18	7.2	12	7.0	54	4.6	57	5.3
Essex	220	6.9	484	6.7	139	9.2	297	6.8	311	4.3	833	7.4
Franklin	318	7.1	1 529	8.4	224	9.2	775	11.0	494	2.5	1 281	4.4
Hampden	281	6.7	796	6.0	155	11.8	433	21.4	374	3.7	952	2.7
Hampshire	391	5.2	1 275	4.6	210	9.4	610	4.6	510	2.2	948	4.6
Middlesex	360	6.9	738	6.9	195	13.5	443	3.1	480	3.2	1 796	2.2
Nantucket	11	7.4	(D)	(D)	8	6.5	(D)	(D)	14	5.5	(D)	(D)
Norfolk	95	14.1	167	6.6	70	17.9	62	5.3	175	4.1	528	4.4
Plymouth	535	3.6	2 283	1.7	483	4.4	3 224	2.4	622	2.4	2 447	3.9
Suffolk	1	–	(D)	(D)	1	–	(D)	(D)	2	–	(D)	(D)
Worcester	577	6.0	1 167	5.2	359	8.2	827	4.6	902	2.5	1 596	4.0

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)
Massachusetts	**3 674**	**2.1**	**7 221**	**1.4**	**1 847**	**3.2**	**77 337**	**1.0**	**775**	**5.8**	**6 406**	**3.8**
Barnstable	104	5.3	92	6.0	85	6.3	2 027	1.9	49	11.4	(D)	(D)
Berkshire	250	6.7	590	3.6	103	15.2	2 919	5.9	18	36.1	47	36.9
Bristol	386	6.7	608	5.7	186	12.5	5 447	5.3	43	35.9	264	20.8
Dukes	36	5.7	21	4.8	22	6.9	160	.9	9	11.0	9	14.2
Essex	254	6.4	431	4.5	158	8.3	3 449	6.0	68	20.1	234	14.2
Franklin	420	5.6	802	5.3	206	10.3	6 489	6.2	49	25.2	429	6.8
Hampden	259	6.8	483	6.1	118	14.2	4 395	3.3	54	24.5	249	2.8
Hampshire	331	7.7	484	5.7	193	10.5	5 215	1.3	65	26.5	272	32.1
Middlesex	371	7.5	1 166	3.5	158	11.1	12 409	.2	37	14.1	593	.5
Nantucket	10	8.1	(D)	(D)	8	8.4	(D)	(D)	2	17.3	(D)	(D)
Norfolk	135	9.7	181	7.6	48	19.3	2 278	.7	30	31.5	173	21.1
Plymouth	449	5.3	1 059	4.0	273	6.9	21 944	1.8	270	8.5	3 163	6.4
Suffolk	2	–	(D)	(D)	1	–	(D)	(D)	–	–	–	–
Worcester	667	4.8	1 242	3.0	288	8.4	9 986	2.9	81	20.2	661	5.9

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)
Massachusetts	**4 506**	**1.4**	**18 080**	**1.7**	**1 072**	**5.3**	**4 035**	**3.2**	**1 604**	**4.0**	**14 502**	**3.1**
Barnstable	137	2.9	321	9.0	55	9.7	(D)	(D)	46	11.1	372	15.3
Berkshire	314	1.1	1 124	7.0	35	34.3	167	17.9	125	17.7	737	7.4
Bristol	463	3.5	1 550	5.6	91	24.9	261	28.6	138	17.6	1 153	12.3
Dukes	47	5.0	145	4.0	5	11.5	7	16.4	14	7.4	87	6.6
Essex	327	2.9	1 274	4.4	80	12.5	169	26.9	91	11.6	556	5.1
Franklin	452	4.1	1 771	3.9	117	18.2	234	13.3	268	9.0	1 511	7.2
Hampden	332	5.4	1 009	6.9	58	23.2	72	11.8	123	15.3	846	10.9
Hampshire	446	4.6	1 288	4.2	164	15.1	212	8.7	145	15.7	659	11.7
Middlesex	443	4.2	1 885	3.5	79	20.0	101	3.9	123	13.1	963	7.3
Nantucket	10	8.1	(D)	(D)	3	11.6	(D)	(D)	8	6.5	(D)	(D)
Norfolk	159	6.9	446	11.9	20	34.0	131	2.6	36	25.6	225	6.6
Plymouth	589	2.9	4 419	4.1	248	9.4	2 172	3.1	273	8.7	5 521	6.0
Suffolk	1	–	(D)	(D)	–	–	–	–	1	–	(D)	(D)
Worcester	786	4.0	2 726	5.3	117	14.3	308	14.8	213	9.6	1 668	10.0

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)
Massachusetts	**1 047**	**5.1**	**4 873**	**4.2**	**4 840**	**1.1**	**16 695**	**2.4**	**4 747**	**1.3**	**40 348**	**1.3**
Barnstable	31	13.1	326	4.2	127	3.7	360	5.4	142	2.4	1 127	1.8
Berkshire	89	20.6	301	3.9	274	5.2	740	6.4	283	4.1	2 517	11.1
Bristol	129	17.0	412	14.3	464	3.3	1 750	9.8	484	2.9	3 028	2.6
Dukes	9	9.7	21	6.6	50	4.8	180	6.1	51	4.7	150	2.5

See footnotes at end of table.

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TSF:TIPS92-10304331.DAT;1 5/ 9/94 10:30:50 UTF:TIPS93-10304331.DAT;1 5/ 9/94 10:30:51 META:VOL1_TIPS96_APX_14.DAT;9 5/ 9/94 10:31:32

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.											
	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)
Essex	43	19.4	113	6.3	342	2.3	1 019	6.8	319	4.1	2 232	6.1
Franklin	179	12.2	461	8.0	470	3.6	1 338	6.9	487	2.7	4 273	3.8
Hampden	62	17.8	300	3.0	376	3.1	1 037	8.2	331	5.5	2 316	4.1
Hampshire	140	12.1	577	3.7	480	2.2	1 266	13.1	495	2.8	2 759	2.3
Middlesex	92	20.0	431	12.3	499	2.7	1 887	11.1	464	4.0	4 249	1.0
Nantucket	4	8.7	9	16.3	11	5.9	(D)	(D)	13	5.9	(D)	(D)
Norfolk	28	32.1	69	12.0	164	5.8	596	9.3	161	6.6	1 300	3.3
Plymouth	66	21.6	1 184	13.2	627	2.2	3 994	2.8	654	1.7	8 662	3.7
Suffolk	–	–	–	–	2	–	(D)	(D)	2	–	(D)	(D)
Worcester	175	12.1	670	14.7	954	1.8	2 478	4.3	861	3.2	6 819	2.4

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)
Massachusetts	**5 258**	**.8**	**77 725**	**2.1**	**4 853**	**.9**	**235 284**	**.6**	**4 417**	**.9**	**173 255**	**.6**
Barnstable	146	2.1	2 305	7.0	138	1.0	(D)	(D)	131	1.1	1 447	1.2
Berkshire	319	1.1	2 291	20.3	302	1.0	29 383	1.1	274	1.1	20 676	1.1
Bristol	522	1.0	6 794	7.5	482	1.0	18 262	1.3	433	1.0	13 257	1.4
Dukes	56	4.5	(D)	(D)	51	1.9	1 613	6.0	47	2.5	745	4.5
Essex	358	1.1	4 277	15.1	316	1.1	14 304	2.5	285	1.2	10 257	2.6
Franklin	519	.9	3 230	16.7	489	.9	32 709	1.0	455	.9	23 897	1.0
Hampden	409	1.0	2 585	15.2	367	.9	15 047	1.2	323	1.1	10 842	1.2
Hampshire	526	.9	4 052	11.9	497	.8	29 934	.9	456	.9	22 699	.9
Middlesex	535	1.1	11 139	3.4	476	1.1	18 005	1.5	428	1.2	13 972	1.5
Nantucket	14	5.5	(D)	(D)	14	1.2	(D)	(D)	12	1.0	(D)	(D)
Norfolk	187	1.3	(D)	(D)	165	1.1	4 636	3.3	145	1.4	3 185	4.3
Plymouth	668	.9	33 643	1.9	626	.9	20 142	.8	594	.9	16 578	.8
Suffolk	2	–	(D)	(D)	2	–	(D)	(D)	2	–	(D)	(D)
Worcester	997	1.0	6 958	9.4	928	1.0	48 642	1.1	832	1.1	35 274	1.1

Geographic area	Irrigated land				Livestock and poultry							
					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)
Massachusetts	**1 336**	**.9**	**19 909**	**.5**	**1 565**	**1.0**	**68 331**	**.5**	**850**	**1.3**	**7 347**	**1.6**
Barnstable	107	1.6	1 273	1.1	5	10.6	(D)	(D)	3	13.2	(D)	(D)
Berkshire	27	4.7	78	9.9	164	1.6	10 321	.9	92	2.7	1 030	5.1
Bristol	146	1.9	1 803	1.5	163	1.9	7 311	1.1	93	2.8	963	3.0
Dukes	21	6.3	98	7.5	15	7.6	259	9.6	9	10.6	(D)	(D)
Essex	98	2.6	933	2.9	63	3.4	2 643	2.3	39	5.1	398	6.7
Franklin	60	3.6	1 153	.9	244	1.6	13 063	1.0	100	3.0	651	5.2
Hampden	66	2.7	691	2.5	130	2.3	4 314	1.9	74	3.4	567	6.4
Hampshire	50	3.7	(D)	(D)	198	1.7	8 590	1.2	97	2.9	807	3.3
Middlesex	143	2.2	1 324	3.2	106	3.1	3 185	2.1	72	3.9	707	3.7
Nantucket	10	4.4	404	.2	1	–	(D)	(D)	–	–	–	–
Norfolk	54	3.2	266	6.5	44	4.0	1 077	4.4	30	5.4	260	6.3
Plymouth	451	1.1	10 893	.4	69	3.4	1 776	1.8	39	4.8	374	4.3
Suffolk	2	–	(D)	(D)	–	–	–	–	–	–	–	–
Worcester	101	2.6	724	1.9	363	1.6	15 729	1.1	202	2.3	1 477	3.4

Geographic area	Livestock and poultry —Con.											
	Milk cows inventory				Hogs and pigs inventory				Sheep and lambs inventory			
	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)
Massachusetts	**606**	**1.1**	**30 906**	**.4**	**404**	**1.7**	**16 439**	**2.6**	**520**	**1.7**	**11 341**	**2.3**
Barnstable	2	17.9	(D)	(D)	4	15.8	16	17.8	6	13.4	61	20.1
Berkshire	69	2.4	4 617	.5	30	5.5	251	8.4	44	3.9	735	6.8
Bristol	48	2.7	3 529	1.1	54	3.7	4 050	4.4	56	3.8	1 146	7.9
Dukes	5	12.5	(D)	(D)	8	10.5	95	18.9	10	9.6	292	6.8

See footnotes at end of table.

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

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

Geographic area	Livestock and poultry —Con.											
	Milk cows inventory				Hogs and pigs inventory				Sheep and lambs inventory			
	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)
Essex	20	4.2	1 096	.8	24	6.0	459	16.8	36	5.3	636	7.8
Franklin	125	2.1	6 562	1.0	45	4.5	348	6.1	58	4.1	1 437	7.3
Hampden	50	3.2	1 930	1.8	29	5.7	449	9.0	35	5.2	685	8.7
Hampshire	78	2.5	3 619	1.2	38	4.7	2 827	10.2	39	4.7	1 873	4.4
Middlesex	33	4.8	1 078	1.8	36	5.6	1 445	7.4	56	4.6	1 211	7.5
Nantucket	–	–	–	–	–	–	–	–	–	–	–	–
Norfolk	14	6.6	380	4.1	19	6.9	649	5.1	25	5.9	718	8.2
Plymouth	18	5.4	748	1.9	26	6.0	2 453	3.8	48	4.5	649	7.0
Suffolk	–	–	–	–	–	–	–	–	–	–	–	–
Worcester	144	2.1	7 289	1.1	91	3.4	3 397	5.7	107	3.2	1 898	4.1

Geographic area	Livestock and poultry —Con.							
	Hens and pullets of laying age inventory				Broilers and other meat-type chickens sold			
	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)
Massachusetts	**529**	**1.6**	**488 944**	**.4**	**45**	**4.8**	**125 283**	**11.1**
Barnstable	9	9.9	(D)	(D)	1	35.7	(D)	(D)
Berkshire	35	4.9	(D)	(D)	3	17.3	175	16.6
Bristol	49	4.0	(D)	(D)	4	14.5	119	16.2
Dukes	11	9.0	527	9.2	3	25.3	(D)	(D)
Essex	31	5.5	6 160	12.5	2	18.1	(D)	(D)
Franklin	64	3.9	12 774	1.0	5	12.5	89	13.5
Hampden	48	4.3	5 960	.9	4	14.6	45 200	10.8
Hampshire	43	4.5	3 960	3.0	3	14.6	(D)	(D)
Middlesex	60	4.3	19 830	.5	7	11.8	4 998	3.9
Nantucket	–	–	–	–	–	–	–	–
Norfolk	25	5.8	6 006	3.5	1	34.2	(D)	(D)
Plymouth	59	3.8	3 084	13.8	6	13.8	238	15.4
Suffolk	–	–	–	–	–	–	–	–
Worcester	95	3.4	349 434	.4	6	13.7	1 465	14.6

Geographic area	Selected crops harvested											
	Corn for grain or seed						Corn for silage or green chop					
	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)
Massachusetts	**111**	**2.4**	**4 893**	**1.6**	**488 921**	**1.7**	**531**	**1.1**	**25 861**	**.7**	**470 201**	**.6**
Barnstable	2	23.6	(D)	(D)	(D)	(D)	2	14.1	(D)	(D)	(D)	(D)
Berkshire	10	2.6	1 008	3.6	79 940	2.4	49	2.3	4 149	.8	68 376	.8
Bristol	15	6.3	298	5.1	24 026	2.6	76	2.7	3 043	2.4	53 310	2.5
Dukes	1	–	(D)	(D)	(D)	(D)	1	–	(D)	(D)	(D)	(D)
Essex	3	16.0	(D)	(D)	(D)	(D)	21	5.7	1 193	6.2	21 965	5.2
Franklin	15	6.0	840	6.0	111 081	6.2	98	2.3	4 648	1.2	99 814	1.0
Hampden	12	7.5	142	5.2	10 500	1.8	40	3.6	2 150	1.2	38 430	1.5
Hampshire	29	4.8	2 089	1.3	246 182	1.4	79	2.6	2 671	1.3	45 890	1.2
Middlesex	8	9.7	220	5.0	4 552	6.2	32	4.5	1 046	2.2	18 543	2.0
Nantucket	–	–	–	–	–	–	–	–	–	–	–	–
Norfolk	–	–	–	–	–	–	4	–	131	–	2415	–
Plymouth	1	–	(D)	(D)	(D)	(D)	20	5.1	1 369	1.1	27 419	1.1
Suffolk	–	–	–	–	–	–	–	–	–	–	–	–
Worcester	15	7.2	226	9.1	9 905	9.5	109	2.2	5 415	1.9	93 184	1.5

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)
Massachusetts	**102**	**2.8**	**3 520**	**1.1**	**812 469**	**1.3**	**2 269**	**1.0**	**103 596**	**.8**	**213 589**	**.8**
Barnstable	3	15.1	4	4.8	(D)	(D)	7	10.9	(D)	(D)	(D)	(D)
Berkshire	6	10.3	(D)	(D)	(D)	(D)	215	1.4	15 478	1.4	33 264	1.4
Bristol	6	14.2	(D)	(D)	(D)	(D)	202	1.7	6 026	2.4	12 752	2.4
Dukes	8	10.8	8	6.7	1 906	5.2	22	5.9	531	7.1	1 137	7.1

See footnotes at end of table.

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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)
Essex	5	15.6	9	13.3	1 676	10.0	136	2.2	6 641	3.5	12 426	3.6
Franklin	23	6.0	851	3.7	228 703	3.7	332	1.3	14 906	1.5	35 062	1.2
Hampden	2	16.3	(D)	(D)	(D)	(D)	173	1.9	5 834	2.1	12 438	2.7
Hampshire	21	5.1	2 391	.7	527 471	.9	268	1.4	12 920	1.6	24 964	1.6
Middlesex	8	8.4	11	2.1	1 390	4.4	184	2.2	9 106	2.3	17 003	2.6
Nantucket	2	–	(D)	(D)	(D)	(D)	2	–	(D)	(D)	(D)	(D)
Norfolk	2	20.8	(D)	(D)	(D)	(D)	71	3.0	2 517	5.4	4 871	6.3
Plymouth	10	9.0	29	5.1	4 758	2.3	102	2.9	3 700	3.0	6 521	2.7
Suffolk	–	–	–	–	–	–	–	–	–	–	–	–
Worcester	6	9.1	16	5.0	3 434	5.7	555	1.3	25 848	1.4	52 902	1.4

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)
Massachusetts	**995**	**1.1**	**16 577**	**.9**	**525**	**1.5**	**7 848**	**1.5**
Barnstable	26	5.5	246	5.4	10	8.3	78	4.6
Berkshire	52	3.7	580	4.0	19	6.2	193	4.3
Bristol	120	2.2	2 918	1.5	50	3.8	341	6.0
Dukes	16	7.3	(D)	(D)	4	14.5	(D)	(D)
Essex	95	2.7	1 845	2.2	41	4.7	369	3.3
Franklin	93	2.9	1 563	2.1	57	3.8	1 050	2.3
Hampden	70	2.9	1 505	2.1	57	3.6	825	3.0
Hampshire	135	2.3	2 214	2.9	44	4.1	733	4.7
Middlesex	136	2.4	2 265	2.3	53	3.9	819	2.6
Nantucket	3	14.4	(D)	(D)	1	–	(D)	(D)
Norfolk	28	5.4	360	6.9	15	7.3	122	13.9
Plymouth	60	3.7	973	4.2	41	5.0	211	8.5
Suffolk	–	–	–	–	–	–	–	–
Worcester	161	2.3	1 880	2.0	133	2.6	3 086	3.1

[1]Data are based on a sample of farms.

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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.

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

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