APPENDIX A.
General Explanation

SURVEY SAMPLE

The sample of farmers selected to participate in the AELOS survey were drawn from the NASS List and Area Frames. The List Frame consists of known farm operators who have been contacted on previous surveys and control data has been captured and used to stratify for future samples. The Area Frame is used to measure change in the farming industry; segments of land are selected in each State to represent the different land uses (farm, forest, residential, industrial, etc.). Within these segments we can measure the amount of land entering and leaving the farm industry, regardless of who the operator is. More importantly the Area Frame is used to obtain completeness of data by representing those farmers who are not on the NASS list. New operations that began after June 1, 1999 did not have a chance to be selected for the survey. See Table A for information of counts of farm operators in the survey.

The landlord portion of the survey was comprised of the names and addresses reported as landlords by the farm operators who responded to the operator portion of the survey, with the exception of public landlords. Public landlords are Federal and State Government units, railroad companies, Indian reservations and other public landlords. Public landlords were not requested to fill out a landlord report form, instead the acres rented from them was brought forward from the operator questionnaire.

SAMPLE SIZES & COLLECTION PROCEDURES

Operator Survey

The sample size for AELOS totaled 42,328. The AELOS total sample included 17,245 samples from the Agricultural Resource Management Study (ARMS) sample. These included samples from both the list frame and the area frame. Of these, 11,376 were personally enumerated via typical ARMS data collection procedures. The remaining ARMS sample of 5,869 (inaccessables or refusals of the voluntary ARMS) plus the supplementary AELOS sample of 25,083 were mailed the operator report for completion of applicable items for the land which they operated. The mail group was attempted several times by mail before phone contacts or personal interviews were attempted for the non-respondents. This was done to keep data collection costs at a minimum.

Of the 42,328 operators sampled, 4,743 were out of business, 266 were out of scope, and 26,690 were completed, usable reports. Of the completed reports, 137 had less than $1,000 in sales and less than $1,000 in potential sales, and were not eligible to be summarized. The total nonresponse was 10,629 of which 4,596 were refusals and 6,033 were inaccessable.

Landlord Survey

The landlord form was sent to private landlords listed on completed operator reports. Landlords were asked to complete items relating to land (target acres) rented to the specified farm operators. The landlord sample size amounted to 68,319. There were 1,141 public landlords reported. Public landlords include Indian reservations, BLM, State, Federal, Railroad and Utility companies. The only information included for public landlords was acres rented to the operator. See Table B for information of Public landlords by type and state. Of the remaining 67,178 landlords, 34,158 good reports were received. Nonrespondents and respondents who returned blank forms were imputed by computer processing. The basic characteristic - acres of land rented to the operator - was provided by the operator report. The imputation program completed the remainder of the information based on characteristics of landlord reports of similar size in the same area. A total of 33,020 landlords were added by this method.

PROCESSING

Operator

All questionnaires underwent a manual edit prior to keying. Editing was conducted by either the Statistician in charge of the survey in each State or someone they trained to assist them. The questionnaires were edited for completeness and accuracy. If data was missing or incorrect that cell was marked for computer imputation at a later date. After key entry the questionnaires were run through a computer edit, which made additional checks on the completeness and accuracy of the data.. The data was then loaded into the Interactive Data Analysis System (IDAS) to review the data on a State or regional level to locate outliers and make updates when necessary. Additional data reviews were conducted in Headquarters for data relationships that could not be displayed by any of the other tools. At any point in the review process the Statistician could recontact the operator for clarification on any missing or unusual data.

Table A. **Counts of Farm Operators in the Survey**

Geographic area	Original survey count				Final processed count			
					Operators		Landlords	
	Total	ARMS List	ARMS Area	Supplement	Expanded	Expanded	Unexpanded	Expanded
United States	42,328	14,875	2,370	25,083	26,553	2,133,909	68,319	2,289,672
REGIONS								
Northeast	5,596	1,005	214	4,377	3,152	148,372	8,653	162,830
Midwest	11,599	5,866	731	5,002	7,758	830,588	25,504	1,164,762
South	14,536	4,933	938	8,665	9,269	862,648	23,338	757,049
West	10,597	3,071	487	7,039	6,374	292,301	10,824	205,031
SUB **REGIONS**								
Northeast	5,596	1,005	214	4,377	3,152	148,372	8,653	162,830
Lake	2,947	1,593	140	1,214	2,048	213,433	6,684	247,758
Corn Belt	4,739	2,421	360	1,958	3,158	420,900	10,737	568,924
Northern Plains	3,913	1,852	231	1,830	2,552	196,255	8,083	348,080
Appalachian	4,436	1,415	288	2,733	2,887	310,634	8,273	259,979
Southeast	4,026	1,237	253	2,536	2,255	157,107	4,954	119,440
Delta	2,753	885	187	1,681	1,907	110,307	5,069	103,773
Southern Plains	3,321	1,396	210	1,715	2,220	284,600	5,042	273,857
Mountain	5,538	1,408	241	3,889	3,468	131,115	5,206	103,147
Pacific	5,059	1,663	246	3,150	2,906	161,186	5,618	101,884
NORTHEAST								
Connecticut	323	25	3	295	186	2,784	562	4,931
Delaware	511	59	10	442	267	2,338	838	4,007
Maine	349	62	12	275	194	5,579	467	4,968
Maryland	830	89	36	705	442	12,166	1,427	13,353
Massachusetts	385	45	10	330	219	7,574	346	8,149
New Hampshire	259	27	5	227	140	3,984	234	5,079
New Jersey	703	65	28	610	338	9,158	693	6,062
New York	710	261	46	403	427	37,186	1,691	44,929
Pennsylvania	812	296	56	460	544	60,786	1,787	65,841
Rhode Island	247	20	2	225	133	718	133	401
Vermont	467	56	6	405	262	6,099	475	5,110
LAKE								
Michigan	844	388	45	411	566	53,444	2,518	68,531
Minnesota	1,144	757	34	353	851	81,266	2,428	103,340
Wisconsin	959	448	61	450	631	78,723	1,738	75,887
CORN BELT								
Illinois	879	557	50	272	635	89,397	2,539	158,778
Indiana	726	402	60	264	462	61,307	2,405	103,720
Iowa	1,115	618	84	413	731	94,943	1,749	124,612
Missouri	1,033	419	80	534	660	99,135	1,389	74,737
Ohio	986	425	86	475	670	76,118	2,655	107,077
NORTHERN PLAINS								
Kansas	1,436	583	93	760	979	70,299	3,490	118,252
Nebraska	947	586	45	316	596	57,477	1,393	98,005
North Dakota	680	301	65	314	449	35,175	1,618	75,422
South Dakota	850	382	28	440	528	33,304	1,582	56,401
APPALACHIAN								
Kentucky	771	302	60	409	498	84,549	998	49,155
North Carolina	1,059	480	63	516	690	65,155	3,164	93,769
Tennessee	909	296	72	541	585	89,442	1,496	58,834
Virginia	1,082	270	50	762	731	50,452	2,304	44,607
West Virginia	615	67	43	505	383	21,036	311	13,614
SOUTHEAST								
Alabama	977	247	68	662	652	43,363	1,383	34,168
Florida	1,330	434	91	805	573	44,424	290	11,513
Georgia	943	351	54	538	576	44,365	1,218	33,232
South Carolina	776	205	40	531	454	24,955	2,063	40,527
DELTA								
Arkansas	919	339	66	514	667	44,872	1,248	33,876
Louisiana	1,020	250	61	709	659	26,247	2,507	34,639
Mississippi	814	296	60	458	581	39,188	1,314	35,258
SOUTHERN PLAINS								
Oklahoma	1,303	504	61	738	868	72,980	2,005	73,284
Texas	2,018	892	149	977	1,352	211,620	3,037	200,573
MOUNTAIN								
Arizona	537	173	19	345	269	6,330	616	5,680
Colorado	1,255	358	54	843	714	29,834	1,310	25,359
Idaho	593	200	34	359	418	24,645	841	21,398
Montana	615	277	22	316	445	25,669	808	24,555
Nevada	268	48	5	215	154	3,915	50	480
New Mexico	703	159	46	498	414	16,802	366	7,956
Utah	1,028	76	44	908	727	15,242	812	9,567
Wyoming	539	117	17	405	327	8,678	403	8,152
PACIFIC								
California	2,489	972	180	1,337	1,261	80,645	2,607	48,912
Oregon	1,117	294	32	791	657	43,063	1,260	20,416
Washington	1,073	397	34	642	714	32,822	1,519	30,004
Alaska	230	-	-	230	161	393	105	260
Hawaii	150	-	-	150	113	4,263	127	2,292

Table B. **Public Landlords - Number of Leases for Selected States**

Geographic area	Total		Federal		State		Indian Reservations		Railroad companies		Other Public	
	Number	Acres (1,000)	Number	Acres (1,000)	Number	Acres (1,000)	Number	Acres (1,000)	Number	Acres (1,000)	Number	Acres (1,000)
United States	1,141	2,105	112	200	482	954	179	773	14	11	354	167
Arizona	53	816	10	72	24	228	15	515	1	0	3	0
Colorado	50	76	1	1	43	56	-	-	-	-	6	20
California	40	12	6	6	3	2	-	-	1	0	30	4
Idaho	18	12	1	0	-	-	16	12	-	-	1	0
Kansas	10	6	2	4	4	2	-	-	1	0	3	0
Montana	133	184	11	32	70	57	41	69	3	4	8	21
Nebraska	52	39	3	1	43	36	1	0	1	1	4	1
Nevada	2	1	1	0	1	1	-	-	-	-	-	-
New Mexico	42	306	1	0	35	172	3	114	-	-	3	18
North Dakota	33	16	1	0	19	6	11	10	1	0	1	1
Oklahoma	92	48	11	4	30	25	26	12	-	-	25	7
Oregon	30	32	8	24	6	2	9	5	-	-	7	1
South Dakota	57	57	8	6	13	10	24	24	-	-	12	17
Texas	13	13	-	-	6	6	-	-	-	-	7	7
Utah	30	7	-	-	4	1	11	3	-	-	15	3
Washington	68	30	6	2	40	19	16	7	-	-	6	1
Wyoming	62	200	8	39	45	149	1	0	1	4	7	8
All Other States	356	250	34	8	96	183	5	2	5	1	216	56

Landlord

All questionnaires underwent the same level of detail when being edited and reviewed as was used on the operator version. For a more detailed definition of Landlords, please refer to the Definition part of the this Appendix.

Combined Data Review

Once the data for the two surveys was combined, additional data checks were conducted to check for double reporting of data by both the operator and the landlord. (Example: In several States the tenant would pay the property tax as part of the rental agreement. Usually they would pay the tax amount to the landlord and then the landlord would send the money to the Tax Office. In several cases both the tenant and the landlord reported the same tax dollars.)

Post data collection review by Headquarters included extensive comparisons between the current findings of the AELOS survey with results of the 1997 Census of Agriculture, the results of the 1999 ARMS III survey, Economic Research Service (ERS) estimates along with NASS published data. All discrepancies in the data were sent back to the State offices for reconciliation.

DEFINITIONS AND EXPLANATIONS

For the exact wording of the questions used in the survey questionnaires, see Appendix B. The definitions and explanations in this section provide more detailed descriptions for selected items and terms than are available on the questionnaires or in the tables.

Farm

For this survey, the definition of a farm is the same as that for the 1997 Census of Agriculture. A farm is defined as any place from which $1,000 or more of agricultural products were sold or normally would have been sold during 1999. The farm or "the operation" is defined as all land under the control or supervision of one person or partnership at the time of enumeration and on which agricultural operations were conducted at any time in 1999. It is made up of the sum of the land owned in 1999, plus the land rented from others, minus the land rented to others.

Operator

The term "operator" designates a person who operates a farm/ranch, either doing the work or making day-to-day decisions about such items as planting, harvesting, feeding, and marketing. The operator may be the owner, a member of the owner's household, a salaried manager, or a tenant. If he/she rents land to others or had land worked on shares by others, he/she is considered the operator only of the land which he/she retains for his/her own operation. For partnerships, only one partner is counted as an operator. If there is no clear-cut partner in charge, the senior or oldest active partner is considered to be the operator. For survey purposes, the number of operators is the same as the number of farms.

Landlord

For purposes of this publication, a landlord is an individual, partnership, or entity controlling land rented, leased, or used rent-free by a farm operating unit. The number of landlords is not a measure of landholders but a count of the number of leases or rental arrangements made by farm operating units. A landlord does not necessarily represent a "tract" of land. If a farm operator listed the same landlord multiple times for separate "tracts" of land, the acreage was combined and counted as one landlord.

Public landlords - include land owned or controlled by Federal or State agencies, railroad companies, and land in Indian reservations referred to in the table stub under "Landlord Characteristics". Land owned under all other entities such as individuals, partnerships, counties, cities, or companies other than railroads are classified as nonpublic landlords. Report forms were not mailed to public landlords; therefore, public landlord characteristics are not available.

Landlords operating farms - All landlords who reported operating a farm or ranch in 1999 were identified by the questions in Section G which asked, "Did you operate a farm or ranch in 1999?" The landlords who operated a farm or ranch in 1999 were removed from the nonoperator owner group. For the landlords who did not operate a farm or ranch, the implication was that the landlord either participated in agricultural production on a share basis and was not the actual producer or was not producing on a scale to qualify as a farm under the census definition.

Multiple landlords - Because the mail list for landlords was prepared from the names reported by operators, it was possible for the same landlord to appear on two or more operator reports. When this occurred, a landlord would submit more than one report and be a "multiple landlord". Land ownership data for tables 68 through 103 would be over estimated if the same landlord was included more than one time. Therefore, it was necessary to identify multiple landlords and include total acres owned only once.

During data processing, a special effort was made to identify and code multiple landlord reports. The multiple landlords were linked by the ID number of the operator. The coding of "multiple landlords" ensured that a landowner was not counted multiple times in the land ownership tables.

As an example, a "multiple landlord," a landlord reported by two operators in the sample, would have two reports or observations as a landlord. If that landlord owned a total of 246 acres, each observation would be expanded by the sample weight and included in the 180 to 250 acres owned in the landlord characteristics stub for tables 1 through 67. However, the coding as a "multiple landlord" will permit only one observation to be expanded and included in the land ownership tables 68 through 103, thereby reducing the chance of over estimating acres owned.

Owners

Owners are individuals, partnerships, corporations, or other entities that own land used for agricultural purposes. Owners exclude Federal and State agencies, railroad companies, Indian Reservations, and abnormal farms. Owners are classified as either owner-operators or nonoperator-owners, based on whether they operate any of the land they own. Data for owner characteristics were included only for individual and partnership operations.

The estimates for owner-operators were made using data from the operator reports. Nonoperator-owners are a subset of the landlord reports. Nonoperator-owners included all landlords
who were not public landlords and landlords that did not report operating a farm or ranch in 1999.

Land in Farms

The acreage designated in the tables as "land in farms" consists primarily of agricultural land used for crops, pasture, or grazing. It also includes woodland and wasteland not actually under cultivation or used for pasture or grazing, provided it was part of the farm or ranch operator's total operation. Land in farms includes acres set aside under annual commodity acreage programs, as well as acres in the Conservation Reserve Program for places meeting the farm definition. Land in farms is an operating unit concept and included land owned and operated as well as land rented from others. Land used rent-free was reported as land rented from others. All grazing land, except land used under grazing permits on a per-head basis, was included as "land in farms" provided it was part of a farm or ranch.

Land leased from public landlords (Federal, State, railroad companies, Indian Reservations, and institutions) was considered to be debt-free, and not subject to property taxes.

Land Owned

Land owned is used in tables 68 through103. The estimate for land owned includes all land owned by farm operators (owner-operator) plus all land owned by landlords who did not operate a farm in 1999 (nonoperator-owners).

The acres of owner-operator land are in two classifications. The first is acres owned and operated; the second, land rented to others. The acres owned and operated by owner-operators are the same acres as owned land in farms in tables 1 through 67.

Land owned is an estimate by ownership rather than by farm unit. As in the census, it does not include land used under Government grazing permits on a per-head basis. However, it does exclude acres in abnormal farms and acres owned by public landlords, which are included in the land-in-farm category in census data.

Owned land for operators - In tables 1 through 67, owned land for operators are the acres of land owned and operated by the farm operator at any time in 1999.

Acres owned for landlords - In tables 1 through 67, acres owned for landlords are the sum of all land owned by landlords. This includes land owned and operated by landlords.

Ownership Characteristics

All farm operators and landlords were requested to complete a series of questions on the agricultural land they owned on December 31, 1999. These items included: a history of acquisition of land, number of tenants, and acres leased by type of lease. Imputation was made for nonresponse to these items.

Value of Land and Buildings

Respondents were asked to report their estimate of the current market value of land and buildings owned, rented, or leased from others, and rented or leased to others. Market value refers to the amount the land and buildings would sell for under current market conditions. If the value of land and buildings was not reported, it was imputed using the average value of land and buildings from a similar farm in the same geographic area.

Market Value of Agricultural Products Sold

This category represents the gross market value before taxes and production expenses of all agricultural products sold or removed from the place in 1999 regardless of who received the payment. It includes sales by the operator, as well as the value of any shares received by partners, landlords, or others associated with the operation. It includes receipts from placing commodities in the Commodity Credit Corporation (CCC) loan program in 1999. It does not include payments received for participation in Federal Farm Programs nor income from farm-related sources, such as custom work and other agricultural services, income from the sales of forest products or income from nonfarm sources.

Operator's share - The operator's share is the value of agricultural products sold minus:

a. The landlord's share, where the operator uses assets of the landlord under a share arrangement.

b. The contractor's share, in the case of an operator with a production contract.

Landlord's share - This total represents the landlord's share of the value of agricultural products sold from the land rented to operators on a share-rental basis.

Contractor's share - The contractor's share of the total is the total market value of agricultural products produced under contract minus the amount paid to the producer.

Operator's Income

Net cash income from agricultural sales - This income is the operator's share of the value of agricultural products sold minus the operator's cash operating expenses and cash rent.

Net farm-related income - This income includes Government payments to the farm operator plus all other farm-related income such as customwork, value of rent or share payments received, sales of forest products, or other income closely related to the farm minus the cash expenses for providing the service.

Large entries for farm-related income were screened and compared to the operator's market value of agricultural products sold. With the exception of Government payments and rental income of agricultural land, farm-related income entries of $50,000 or more, when greater than the operator's market value of products sold, were evaluated to determine if they should be entered in Section I, Off-Farm Income, "operation of self-employment business or professional practice."

Net cash farm income - This is the operator's income from the net cash income from agricultural sales plus the net farm-related income.

Off-farm income - This category is the income for the operator, senior partner, or hired manager's household and includes cash wages, salaries, tips, military pay, commissions, piece-rate payments, cash bonuses, income from nonrelated farm business or professional services, retirement and/or disability payments, public assistance, interest, dividends, income from estates or trust, net cash rent from nonfarm property, net royalties or lease payments from mineral rights, annuities, alimony, regular contributions from persons not living in the household, and any other monetary income from other sources.

Net cash income - This is the operator's total income from net cash farm income plus off-farm income. If the net cash income is zero (0), then the return is considered a gain.

Assets

Operator assets are listed in two categories. Farm assets include the physical resources and financial assets used in the operation of the farm. Household assets include the financial resources for the operator household.

1. Farm assets include the value of land and buildings owned and operated, as well as the business assets owned by the farm business. The assets owned by the farm business include the livestock, machinery and equipment, crop inventories, stock in Farm Credit System, farm cooperatives, production credit associations, etc., as well as the cash, bonds, and accounts receivable held by the farm operation as of December 31, 1999.

2. Household assets are deposits, securities, cash value of life insurance, off-farm operator dwellings, accounts receivable, and cash on hand held by the operator and members of his/her household on December 31, 1999.

For a family or individual operation - All farm assets owned by the operator and related members of the household engaged in the farm business were to be reported.

For a partnership or family corporation - All business assets owned by the partnership or family corporation were to be reported, but the household assets were to be reported only by the senior partner (or person in charge of the partnership) or by the person in charge of the family corporation.

For large corporations - Including managed operations, all business assets managed for the farm owner were to be reported. However, only the household assets owned by the hired manager and related members of the household engaged in the farm business were to be reported.

The type of assets excluded from the operator's report were land and buildings rented to others; the landlord's share of any assets; poultry, livestock, and other assets owned by contractors, investors, etc.; and machinery, equipment, and other assets rented from others. Landlord assets are limited to the physical farm assets associated with the acres of land rented to the specified farm operator.

Debt

Farm operators "with debt" are those reporting debt for the farm or ranch operation, not debt on other household assets reported in section I of the operator report form. Farm operators were instructed to report as debt the unpaid principal of the loans, sales contracts, and other bills owed by the operator or spouse on December 31, 1999. In case an indebted operator (or spouse) owned farmland that was rented or leased to others, or owned a nonfarm business, the operator was asked to prorate debt so the amount reported would relate only to the farmland operated. Debts owed for less than 30 days, such as charge accounts, were not to be reported.

The instructions and procedures for reporting landlord debt were the same as those for reporting farm operator debt. Each landlord listed by a farm operator was asked to report debt relating to the acreage rented to the farm operator (target acres) in the sample.

Capital Purchases and Operating Expenses

These are the total expenditures for all capital items and all cash operating expenses.

Operator's Cash Operating Expenses

This represents the total operating expenditures, excluding depreciation and change in inventory values, made by the farm operator for farming operations in 1999. Cash expenditures paid by landlords were not included by the operator, but were reported by the landlords. The cost of items and services supplied by contractors is not included, but is shown separately.

Capital Purchases

This refers to expenditures used for purchasing long-lasting items required for the production of agricultural income, such as land, buildings, land improvement, equipment and machinery, breeding livestock, and others.

Cash Rent

Each farm operator renting from others was asked "If you rented land from others, how much cash rent did you pay for acres leased during 1999?" The cash rent reported includes, in addition to the amount paid for land rented and operated, any cash rent paid for rented lands the operator may have subrented to others.

Production Contract

Many farm products are produced under contract or binding agreement between the farm operator (producer) and the person who buys or uses the farm product. A production contract usually specifies the kind and/or amount of farm products to be produced and may specify the variety or breed, the operations to be performed during processing, the price to be paid to the producer, and the inputs and technical assistance to be supplied by the contractor. Inputs that were not specified to be provided by the contractor, were not included in the tabulations.

Estimated Real Estate Taxes

Real estate taxes were included for all operators with owned land and landlords. The exception was homesteading.

The dollar-per-acre ratio multiplied by total acres owned provided an estimate for total real estate taxes paid. For landlord reports, the same ratio was used to estimate the real estate taxes paid by the landlord for the acres rented to the specified farm operation. For operator reports, the ratio was used to estimate real estate taxes paid on owned land operated, which would be less than all acres owned for those operators who rented owned land to others. This method may introduce some bias on those cases where the dollar-per-acre ratio reported was significantly different from the true ratio on all land owned, operated, or rented to the specified farm operator. Reports which the respondent did not report taxes were imputed using data from reports of a similar size and type for the geographic area.

Hired Farm Manager

A hired farm manager is a person who is paid a salary or wage (and sometimes a commission) to operate a farm or ranch for an individual or family, a partnership, a corporation, an institution, or other organizations. The hired farm manager is in charge of all day-to-day decisions relating to the operation.

> On the operator report form, the respondent was asked:
> Are the day to day decisions for this operation made by a hired manager? . . . . Yes [ ] No [ ]

The salary for hired farm managers was to be included as income from farm work (section D, item 11of the report form). The data for household assets (section I, items 5 a-c), Off-Farm Income and Household Size; and (section I of the report form) were not to be reported for the hired farm manager and his/her family.

CLASSIFICATIONS

In all cases, classifications used in this publication are comparable to classifications used

in the 1997 Census. The following classifications were either brought forward from the 1997 Census, the more detailed ARMS questionnaire, or imputed based on similar operations. These classifications are used in classifying farms, farm operators, and owner-operators.

Type of Organization -The type of organization classifications used for farm operators and owner-operators are:

Individual or family (sole proprietorship), excluding partnership and corporation.
Partnership, including family partnership.
Corporation, including family corporation.
Other refers to cooperative, estate or trusts.

Corporations were separated into two subclassifications:

1. Family held
2. Other than family held

Type of organization for owned land in farms, tables 68 through 103, utilized the 1997 Census coding for the type of organization in the owner-operator group.

Age - For those records that had age classification brought forward from the 1997 Census of Agriculture, 2 years were added to the Census reported age.

Race - The race classification was obtained from either the ARMS report or the matching report in the 1997 Census of Agriculture.

The ARMS respondents were asked:
"Which of the following do you consider yourself"?
Are you----

1. American Indian or Alaskan Native?
2. Asian American or Pacific Islander American?
3. Black, not of Spanish Origin?
4. Spanish/Hispanic?
5. White, not of Hispanic Origin?
6. Other Race (Specify_____)?

The classification brought forward from the 1997 Census of Agriculture were:

1. White
2. Black, African American, or Negro
3. American Indian
4. Asian or Pacific Islander
9. Other

The two sources correspond as follows (these are the categories that are presented in the tables):

Race	ARMS value	Census Value
White	5	1
Black	3	2
American Indian	1	3
Asian or Pacific Islander	2	4
Other	4,6	9

For the ARMS respondents, the Spanish Origin characteristic was determined by the ARMS value of 4. For other respondents, the characteristic was either brought forward from the 1997 Census of Agriculture, or imputed based on similar reports in the same geographic area.

Gender - Coding was either brought forward from the ARMS report,1997 Census of Agriculture or manually imputed in the SSOs.

Residence - The code for residence of the farm operator was based on reported data (farm operator owned land from Section A Question 1, operator's own dwelling from Section C Question 4a). If that was not sufficient to determine the residency, then data was brought forward from the 1997 Census of Agriculture or imputed based on similar reports.

Principal occupation - Farms were classified by the principal occupation of the operator as:

Farming - The operator spent 50 percent or more of his/her work time in farming or ranching.
Other - The operator spent 50 percent or more of his/her work time in occupations other than farming.

North American Industrial Classification System - North American Industrial Classification System found in the 1997 NAICS Manual, are used to promote uniformity and comparability in the presentation of statistical data collected by various agencies.

An establishment primarily engaged in crop production (Major Group 111) or production of livestock and animal specialties (Major Group 112) is classified in the four-digit industry and three-digit industry group which accounts for 50 percent or more of the total value of sales of its agricultural products. If the total value of sales of agricultural products of an establishment is less than 50 percent from a single four-digit industry, but 50 percent or more from the products of two or more four-digit industries within the same three-digit industry group, the establishment is classified in the miscellaneous industry of that industry group. Otherwise, it is classified as a general crop farm in industry 111998 or a general livestock farm in industry 112990. The classifications are as follows:

NAICS Codes

1. 111 Crop Production
2. 1111 Oilseed and Grain Farming
3. 111110 Soybeans Farming
4. 111120 Oilseed (except Soybeans) Farming
5. 111130 Dry Pea and Bean Farming
6. 111140 Wheat Farming
7. 111150 Corn Farming
8. 111160 Rice Farming
9. 11119 Other Grain Farming
10. 111191 Oilseed and Grain Combination
11. 111199 All other Grain Farming

12. 1112 Vegetable and Melon farming
13. 11121 Vegetable and Melon Farming
14. 111211 Potato Farming
15. 111219 Other Vegetable and Melons (except Potato) Farming

16. 1113 Fruit and Nut Farming
17. 111310 Orange Groves
18. 111320 Citrus (except Orange) Farming
19. 11133 Noncitrus Fruit and Nut Farming

20. 111331 Apples
21. 111332 Grape
22. 111333 Strawberry
23. 111334 Berry (except Strawberries)
24. 111335 Tree Nut
25. 111336 Fruit/Nut Combination
26. 111339 Other Noncitrus Fruit

27. 1114 Greenhouse, Nursery and Floriculture Production
28. 11141 Food Crops Grown Under Cover
29. 111411 Mushroom Production
30. 111419 Other Food Crops Grown Under Cover
31. 11142 Nursery and Floriculture Production
32. 111421 Nursery and Tree Production
33. 111422 Floriculture Production
34. 1119 Other Crop Farming
35. 111910 Tobacco Farming
36. 111920 Cotton Farming
37. 111930 Sugarcane Farming
38. 111940 Hay Farming
39. 11199 All Other Crop Farming
40. 111991 Sugar Beet farming
41. 111992 Peanut Farming
42. 111998 All other Miscellaneous Farming

43. 112 Animal Production
44. 1121 Cattle Ranching and Farming
45. 11211 Beef Cattle Ranching and Farming, including Feedlots

46. 112111 Beef Cattle Ranching and Farming
47 112112 Beef Feedlot
48 11212 Dairy Cattle and Milk production
49 11213 Dual Purpose Cattle Ranching and Farming

50. 1122 Hog and Pig Farming
51. 112210 Hog and Pig Farming
52. 1123 Poultry and Egg production
53 112310 Chicken Egg Production
54 112320 Broiler and Other Meat Type Production
55 112330 Turkey Production
56. 112340 Poultry Hatcheries
57. 112390 Other Poultry Production

58. 1124 Sheep and Goat Farming
59. 112410 Sheep Farming
60. 112420 Goat Farming

61. 1125 Animal Aquaculture
62 11251 Animal Aquaculture
63 112511 Finfish farming and Hatcheries
64 112512 Shellfish Farming
65 112519 Other Animal Aquaculture

66. 1129 Other Animal Production
67. 112910 Apiculture
68. 112920 Horse/equine Production
69. 112930 Fur Bearing Animals and Rabbit Production
70. 112990 All other Animal production

Value of Agricultural Products Sold

Data are shown for farms with sales ranging from less than $2,500 to farms with $1,000,000 or more. The sales values are based on 1999 sales reported in this survey. The survey sample includes farms which previously had sales of $1,000 or more, or had the potential of such sales. Thus, the sales class less than $2,500 includes those farms in the survey reporting sales of less than $1,000, as long as they had potential for such sales.

Tenure of Operator

This classification of farms was based on land owned, land rented from others, land rented to others, or as reported in1999. The classifications of tenure used in this report are:

Full owners, operate only the land they own.
Part owners, operate the land they own and also land they rent from others.
Tenants, operate only the land they rent from others or work on shares for others.

The subclasses of tenants are:

a Cash tenants pay only cash rent, either on a per-acre basis or for the farm as a whole. Cash payments representing a share of the crops or livestock are not considered as cash rent.

b. Share tenants pay a share of the crop and/or a share of the livestock or livestock products.

c. Share cash tenants pay part of the rent in cash and part in share of the crops and/or of the livestock and livestock products.

d. Other tenants are those who do not qualify for inclusion in any of the foregoing subclassifications. They may have had the use of the land rent-free or in return for a fixed quantity of product, payment of taxes, maintenance of buildings, etc.

Size of Farm

All farms were classified into selected size groups according to the total land area in the farm. The land area of a farm is an operating unit concept and includes land owned and operated as well as land rented from others. Land rented to or assigned to a tenant was considered the tenant's farm and not the owner's.

Farm Debt-to-Asset Ratio

The debt-to-asset ratio for the farm is an operator characteristic. It is the sum of the business assets, plus the value of land and buildings owned and operated, divided by the sum of the debt relating to the operation of the farm. This excludes assets and/or debt owned or owed by landlords and contractors.

Major Type of Organization

If the plurality of all land was owned under sole ownership or husband/wife, the major type of organization is individual or family. Likewise, if the plurality of all land is held under family or other partnership, the major type of ownership is partnership. If the plurality of all land was owned by a corporation, the major type of ownership is corporation. In this case, if the majority of corporate land owned was by family corporation, then the sub type of ownership is family corporation; else it would be other than family corporation. If the plurality of all land is owned under other types of arrangements, then the major type of ownership is other.

Individual or family and partnership landlords - Those landlords who owned land as an individual or partnership were classified as to residence, distance of residence from land rented, two racial groups (White or Black and other races), Spanish origin, age, sex, occupation, and percent of income from agricultural rent and sales of agricultural products. Any missing data was imputed based on similar reports.

Corporation landlords - Those landlords who owned land as a corporation were classified by

whether they had business other than that of a landlord, and whether the business was related to agricultural or nonagricultural activities. Any missing data was imputed based on similar reports.

Landlords by ratio of rent received - The ratio of rent received to value of land and buildings rented out was calculated by using rent received and acres rented to all tenants. For landlords with more than one tenant, it was not possible to calculate the rent received from a specific tenant.

Landlords by debt-to-asset ratio - The debt-to-asset ratio for the landlord is the sum of the assets owned by the landlord, including the value of land and buildings involved with the specified farm or ranch operator, divided by the debt associated with those assets.

STATISTICAL METHODOLOGY

Universe

The target population for the survey is the universe of agricultural land owners and farm operators. This includes the farm operators and landlords who rent land to farm operators. A complete list of landlords is not available for sampling purposes. To address this problem in the sample design, a two-stage probability sampling procedure was used to select farm operators and agriculture landlords. In the first stage, farm operators were selected from the NASS List and Area Frames. In the second stage, all landlords reported by the farm operators in the first stage were included.

The universe for the first stage was composed of all farm operators who have $1,000 or more of sales, or have the potential for those sales. The use of an area frame complements the list frame, ensuring coverage of all farm operators. The list frame did not include farm operators that began operation in 1999 and operators who took over an operation during 1999.

Sample Design

The total sample for the first stage was combined from two samples. The first is the Agricultural Resource Management Study (ARMS), which is an annual, voluntary, personally enumerated survey that collects detailed economic data from farm operators. The ARMS sample is obtained from both a list and an area frame and provides economic estimates at a regional level. The second is a supplementary sample, using the same list stratification as the ARMS, added to provide additional samples to allow for reliable state estimates. This supplementary sample used the AELOS questionnaire. The nonresponses from the ARMS sample were also followed up with an AELOS questionnaire (see Collection procedures for more information). The data from the completed ARMS questionnaire, which contained more detailed breakouts of sales and expenditure data as well as additional operator characteristic data, was converted into AELOS equivalent data.

For both the ARMS list and the supplemental sample, the NASS List Frame was stratified by sales class and type of commodity. The ARMS list sample design uses a screening phase (Phase I) that has a simple stratified sample design. The screening phase identifies in-business operations and multiple operating arrangements. The use of a screening phase reduces the sample size and data collection cost of the remaining phases (there are two other phases for ARMS, Phase III is the economic phase). The sample for the ARMS Phase III is a subset of the screening phase, plus an area frame sample that is selected from the June Agricultural Survey (JAS) tracts. All JAS tracts that are not on the NASS List Frame are eligible for selection.

The supplemental sample is a simple stratified design from the NASS List Frame. Table A provides the original sample survey counts and final processed counts for both operators and landlords.

Survey Estimation

The survey used two statistical estimation procedures to account for selection of the survey sample and for the nonresponse to the questionnaire. These procedures were used because not all farm operators were requested to provide the survey data items, and not all sampled farm operators responded to the survey despite numerous contact attempts.

During the sample select of each sample (ARMS and supplemental), a sample weight was assigned to each selected record. Generally, the sample weight is the inverse of the probability of selection. The ARMS sample weight accounts for the probability of selection for both Phase I and Phase III. This allows for each list sample to separately expand to the entire list population. The whole farm operator nonresponse adjustment was made separately to each sample.

The whole farm nonresponse weight for the nonrespondent operator was used to expand the survey data to account for the operators who did not respond to the survey for whatever reason and for the survey questionnaires that were undeliverable (postmaster returns). The nonresponse weight was the ratio of the sum of the value of sales control data (from the list frame) for completed interviews, refusals, and inaccessibles to the sum of the value of sales control data for completed interviews within a specific grouping. For the supplemental sample, this grouping was by strata within each state. For the ARMS list sample, this was grouped by farm value of sales within each state. Thus, for the ARMS list sample, the nonresponse weight could differed within a strata. For the ARMS area sample, this was grouped at the state level. The procedure used for calculating the nonresponse weight assumed that the survey respondent and the nonrespondent operators within a grouping had similar characteristics.

Each list sample’s weight expanded the survey data to estimate list population totals as if a complete census of operators and landlords had been conducted (thus their sum would expand to twice the population). The two list sample’s weights were composited so that the new combined weights would expand to the list population. This was done at the strata level, based on the sample size for each strata. For example, if the sample size for a particular strata was 30 for the

supplemental sample, and 20 for the ARMS sample (which includes known zeroes from Phase I), then each record from the supplemental sample for that strata would be multiplied by 0.6 (=30/(30+20)). Similarly, each record from the ARMS sample for that strata would be multiplied by 0.4 (=20/(30+20)).

The operator's final noninteger weight for the list sample records was the product of the sample weight, the whole farm nonresponse adjustment, and the composite ratio. The operator's final noninteger weight for the area sample records was the product of the sample weight and the whole farm nonresponse adjustment (no compositing was needed for the area sample).

The operator's final noninteger weight was randomly rounded to an integer weight for tabulations. If, for example, the final weight for a group of operators in a particular stratum was 7.2, then one-fifth of the respondent operators in this group was randomly assigned a weight of 8 and the remaining four-fifths received a weight of 7. For tables 1-67, each landlord record was given the weight of their operator. The survey estimates for tables 1-67 were computed by multiplying the data values by this final integer weight, and summing over all records (operator and/or landlord) for a specific grouping (such as state).

For tables 1-67, the expanded number of landlords is the expanded number of lease agreements, not individual landlords. However, for the Land Ownership tables, the expanded number of landlords should be the expanded number of individual landlords. By reviewing the landlord names that the operators reported in Section B, it was found that 0.47% of the reported private landlords and 0.37% of the expanded private landlords are 'multiple' reported landlords (that is, landlords that were reported by more than 1 operator). This only accounts for 4.91% of the reported private landlord land owned, and 5.60% of the expanded land owned. Excluding these duplicates, and using the landlord's weight for tables 1-67, from Section G of the Landlord's report the expanded number of private landlords with multiple leases is 17.46% of the total expanded number of private landlords. Similarly, the expanded number of acres owned by private landlords with multiple leases is 55.83% of the expanded acres owned by private landlords.

The multiple leases adjustment is the state level ratio of the sum of total acres operated and rented from private landlords (from Section B of the Operator's report) to the sum of total acres rented out by private landlords (from Section G of the Landlord's report). The noninteger final weight for private, nonoperator owners was the product of the multiple lease adjustment ratio and the final noninteger operator weight. This resulting noninteger weight was randomly rounded to an integer weight for tabulations, as described above, to become the private nonoperator owner's final integer weight that was used in tables 68-103. For operator-owners, the final operator's weight was used. The survey estimates for tables 68-103 were computed by multiplying the data values by these final integer weights, and summing over all records (owner-operator and/or nonoperator owner) for a specific grouping (such as state).

Survey Error

The statistics in this report are estimates derived from a sample survey. There are two types of errors possible in an estimate based on a sample survey: sampling and nonsampling. Sampling errors occur because observations are made only on a sample, not on the entire population. The sample selection, estimation, and nonresponse estimation procedures contribute to the sampling errors. Nonsampling errors exist even in a complete census and can be attributed to such sources as questionnaire design, data processing, survey coverage, and imputation for missing data. The "accuracy" of a survey result is determined by the joint effects of sampling and nonsampling errors.

The procedures used to account for survey nonresponse in the estimation procedures contribute to both sampling and nonsampling errors. Responding operators were assigned a nonresponse weight to account for nonresponding operators as described above. This contributed to sampling errors. Responding landlords were used as donors for imputing data values for the nonresponding landlords. This contributes to nonsampling errors.

Sampling errors - Variability in the sample estimates of the survey items was due to the operator and landlord sample selection procedures, the sample estimation procedure, and the operator nonresponse estimation procedure. Sampling errors were estimated by using the jackknife method of variance estimation, using 15 random groups. The landlords received the same random group assignment as their associated operators. This treated the operation and its respective landlords as a farm unit and allowed for measurement of the variability among the farm units for a given item of interest. Each random group contained the same sample strata as the original sample with the eligible cases allocated to the stratum similar to that of the original sample. An estimate of the total was computed for each random group and the variation among these random group estimates was used to estimate the overall sampling errors. Estimates of sampling variability, expressed as relative standard errors (percent), are presented in table D.

The survey sample was one of a large number of possible samples of the same size that could have been selected using the same sample design. Estimates derived from different samples would differ from each other. The difference between a sample estimate and the average of all possible sample estimates is called the sampling deviation. 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 the standard error of the estimate divided by the value being estimated, multiplied by 100. If all possible samples were selected, surveyed, and processed under essentially the same conditions, and an estimate and its standard error calculated from each sample, then:

5. Approximately 67 percent of the intervals from one standard error below the estimate to one standard error above the estimate would include the unknown population value, which is the average value of all possible samples.

6. 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 unknown population value which is the average value of all possible samples.

The computations necessary to construct the above confidence statements are illustrated in the following example. Assume that the estimated number of farms for a State is 68,698 and the relative standard error of the estimate is 1.7 percent (.017). Multiplying 68,698 by .017 yields 1,168, the standard error. Therefore, a 67 percent confidence interval is 67,530 to 69,866 (68,698 plus or minus 1,168). If corresponding confidence intervals were constructed for all possible samples of the same size and design, approximately two out of three (67 percent) of these intervals would contain the figure obtained from a complete enumeration. Similarly, a 90 percent confidence interval is 66,771 to 70,625 (68,698 plus or minus 1.65 x 1,168).

Nonsampling errors - Nonsampling errors arise from incorrect or incomplete data reporting, misinterpretation of questions, imputation of missing data, and inaccurate processing of data. Careful efforts were made to keep errors introduced during clerical and computer processing to a minimum through the use of quality control, verification, and check measures on specific operations. All such errors are in addition to sampling errors and are independent of the sample design.

Some data reported may be incorrect as a result of the misinterpretation of a question or the use of estimates in reporting. Respondents may have failed to provide all the information requested. In some cases, the respondent may have indicated the presence of an item but not the amount. Data were reviewed for inconsistencies. Changes were made to data items which appeared to be inconsistent with other items.

Whole farm nonresponse or item nonresponse imputations for landlords represent potential sources of nonsampling error in the survey data. Information reported by another farm operation with similar characteristics used to edit or impute for an entire farm operation or item nonresponse may be biased because the characteristics of the nonrespondents were not observed and may differ from those of the respondent report. This bias may be reflected either randomly or systematically above or below the true population value.

Table C. Reliability Estimates of U.S. and State Totals

Geographic area	Farms	Land in farms	Owned land	Rented land	Value of land and buildings	Farm debt			Market value of products sold	Net cash income
						Total	Operator	Landlord		
United States	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.1	0.8
REGIONS										
Northeast	3.2	2.6	2.1	4.8	4.1	1.1	1.3	1.6	0.4	2.0
Midwest	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	1.1
South	0.3	0.3	0.3	0.5	0.2	0.4	0.4	0.7	0.2	1.2
West	1.1	0.3	0.4	0.4	0.5	0.7	0.8	1.0	0.3	2.3
SUB **REGIONS**										
Northeast	3.2	2.6	2.1	4.8	4.1	1.1	1.3	1.6	0.4	2.0
Lake	0.6	0.3	0.3	0.4	0.4	0.4	0.4	1.2	0.3	1.6
Corn Belt	0.6	0.2	0.3	0.3	0.3	0.3	0.3	0.7	0.3	1.9
Northern Plains	1.0	0.3	0.3	0.3	0.3	0.5	0.5	1.0	0.4	1.0
Appalachian	0.4	0.3	0.3	0.4	0.3	0.5	0.6	0.6	0.3	0.5
Southeast	0.5	0.6	0.7	0.9	0.6	1.3	1.3	2.7	0.4	0.9
Delta	1.3	0.4	0.6	0.5	0.5	0.6	0.7	0.9	0.3	1.8
Southern Plains	0.7	0.5	0.5	0.8	0.4	0.4	0.4	1.5	0.4	3.0
Mountain	1.6	0.4	0.5	0.5	1.0	0.7	0.7	1.8	0.5	5.2
Pacific	1.4	0.5	0.6	0.7	0.5	1.1	1.3	1.1	0.4	1.1
NORTHEAST										
Connecticut	22.5	79.1	15.0	170.1	93.9	38.5	45.4	2.1	3.9	16.8
Delaware	3.8	0.9	1.1	1.2	1.5	1.3	1.4	1.9	1.8	2.8
Maine	23.2	5.4	6.5	2.2	4.5	2.4	2.8	2.2	1.9	15.0
Maryland	1.2	1.6	0.8	3.2	1.5	1.5	1.7	1.9	0.7	2.2
Massachusetts	13.4	10.9	10.3	35.9	11.5	2.3	2.5	2.1	1.5	5.8
New Hampshire	28.3	24.7	23.8	28.5	26.6	3.7	1.8	14.3	3.3	13.2
New Jersey	7.8	1.1	1.5	1.5	2.9	0.9	0.9	1.9	1.0	5.6
New York	5.4	6.2	5.0	9.3	3.7	2.5	2.6	1.7	0.6	1.4
Pennsylvania	6.1	2.0	2.0	3.1	2.5	0.8	0.7	2.4	0.7	4.5
Rhode Island	0.5	0.8	0.8	2.3	0.8	1.3	1.4	2.6	1.4	1.2
Vermont	0.4	0.6	0.7	1.0	0.4	1.0	0.8	4.8	0.8	0.7
LAKE										
Michigan	1.8	0.6	0.7	0.7	1.0	0.9	1.1	1.1	0.6	5.2
Minnesota	0.7	0.4	0.5	0.4	0.4	0.5	0.5	0.7	0.5	1.1
Wisconsin	1.0	0.5	0.5	1.0	0.7	1.0	0.7	5.3	0.5	1.0
CORN BELT										
Illinois	1.0	0.4	0.6	0.6	0.5	0.5	0.6	1.1	0.5	1.0
Indiana	1.2	0.6	0.6	0.8	0.5	0.7	0.8	1.5	0.6	0.7
Iowa	0.5	0.4	0.5	0.5	0.4	0.5	0.5	1.4	0.5	0.5
Missouri	2.0	0.6	0.8	0.6	0.8	0.9	1.0	1.1	0.7	8.6
Ohio	0.8	0.5	0.6	0.7	0.6	0.8	0.8	2.0	0.6	0.9
NORTHERN PLAINS										
Kansas	2.4	0.4	0.6	0.5	0.7	0.8	0.9	0.9	1.0	2.4
Nebraska	1.0	0.6	0.6	0.7	0.6	1.0	1.2	1.5	0.6	1.2
North Dakota	0.6	0.6	0.7	0.7	0.6	1.0	0.6	3.2	0.6	0.6
South Dakota	1.8	0.6	0.6	0.8	0.9	1.0	1.1	1.3	0.6	2.0
APPALACHIAN										
Kentucky	0.9	0.6	0.6	1.0	0.6	1.3	1.4	1.6	1.0	0.7
North Carolina	0.7	0.5	0.7	0.7	0.5	0.8	0.9	1.1	0.4	0.7
Tennessee	0.5	0.5	0.5	0.8	0.5	0.8	0.9	1.1	0.8	1.1
Virginia	1.0	0.6	0.7	0.9	0.6	1.0	1.2	1.4	0.8	0.9
West Virginia	1.4	0.7	0.7	1.1	0.7	0.8	0.8	2.0	0.8	2.6
SOUTHEAST										
Alabama	0.7	0.8	1.0	0.9	0.6	1.4	1.4	4.8	1.2	1.2
Florida	0.9	1.1	1.2	2.2	0.7	0.9	0.9	3.4	0.7	1.9
Georgia	1.1	1.2	1.6	0.8	0.9	2.8	2.8	1.9	0.7	1.8
South Carolina	1.8	1.6	1.0	2.8	3.0	1.8	2.0	3.2	0.8	1.9
DELTA										
Arkansas	2.1	0.7	1.1	0.8	0.7	0.9	1.0	1.4	0.5	3.8
Louisiana	4.1	0.8	1.9	0.6	1.3	1.8	2.5	2.1	0.6	1.7
Mississippi	0.8	0.7	0.8	1.0	0.7	0.7	0.7	1.4	0.5	1.7
SOUTHERN PLAINS										
Oklahoma	0.9	0.6	0.7	0.7	0.8	0.6	0.6	1.4	0.6	1.1
Texas	0.8	0.6	0.6	1.0	0.4	0.5	0.5	1.8	0.5	3.5
MOUNTAIN										
Arizona	7.6	2.5	4.6	2.5	6.0	2.7	1.7	4.9	2.6	11.7
Colorado	1.4	0.7	0.7	1.0	1.0	0.7	0.8	1.1	0.7	1.8
Idaho	3.8	0.8	0.9	1.0	3.3	2.3	2.6	1.4	1.2	17.9
Montana	2.0	0.6	0.7	0.9	0.8	1.0	1.0	1.6	0.6	2.2
Nevada	24.6	1.8	2.0	2.8	14.5	1.2	1.2	5.5	1.5	13.8
New Mexico	8.2	1.3	1.7	1.1	2.6	0.9	0.8	3.3	1.0	12.8
Utah	1.1	0.8	0.8	1.4	1.1	1.6	1.6	1.9	1.0	0.9
Wyoming	1.7	1.0	0.8	1.9	2.5	1.2	0.8	4.6	1.8	1.8
PACIFIC										
California	0.8	0.8	1.0	1.1	0.5	0.7	0.8	1.4	0.5	0.6
Oregon	4.5	0.9	0.9	1.7	1.7	5.9	7.0	1.3	0.6	5.4
Washington	3.3	1.1	1.5	0.9	2.4	0.9	1.0	1.9	0.6	3.3
Alaska	0.6	4.8	1.5	5.3	4.2	3.0	3.1	3.4	3.3	1.3
Hawaii	0.9	2.2	3.0	2.9	1.5	1.5	1.5	8.1	2.0	1.8

--continued

Table C. **Reliability Estimates of U.S. and State Totals - Con.**

Geographic area	Operating expenses			Assets		Land acquired in 1999	Amount Financed	Acres leased for :			
	Total	Operator	Landlord	Business	Household			Cash rent	Share rent	Cash / Share rent	Other rent
United States	0.1	0.1	0.3	0.1	0.4	0.5	1.2	0.3	0.3	0.2	0.8
REGIONS											
Northeast	1.0	0.9	3.6	1.7	1.7	1.9	7.3	2.6	2.3	0.9	6.2
Midwest	0.2	0.2	0.2	0.2	0.7	0.9	1.6	0.4	0.4	0.3	0.9
South	0.2	0.2	0.4	0.2	0.4	0.8	1.6	0.4	0.4	0.4	1.0
West	0.3	0.3	0.9	0.3	1.3	0.9	3.6	0.5	0.6	0.9	1.9
SUB **REGIONS**											
Northeast	1.0	0.9	3.6	1.7	1.7	1.9	7.3	2.6	2.3	0.9	6.2
Lake	0.3	0.3	0.5	0.3	1.4	1.1	1.3	0.3	0.8	0.7	1.4
Corn Belt	0.2	0.3	0.3	0.2	0.5	1.6	1.6	0.4	0.5	0.3	1.2
Northern Plains	0.3	0.4	0.4	0.3	2.3	1.4	3.4	0.8	0.6	0.5	1.5
Appalachian	0.3	0.4	0.5	0.3	0.5	1.3	1.7	0.4	0.8	0.5	0.8
Southeast	0.4	0.4	1.8	0.4	0.9	2.5	4.4	0.7	1.9	1.2	1.4
Delta	0.4	0.4	0.6	0.6	1.2	1.2	2.0	0.6	0.6	0.8	2.4
Southern Plains	0.4	0.4	0.9	0.3	0.9	1.2	1.5	0.6	0.6	0.6	1.4
Mountain	0.6	0.6	1.7	0.4	3.2	1.1	6.5	0.7	0.7	1.1	2.2
Pacific	0.4	0.4	1.0	0.4	1.1	1.6	2.8	0.8	0.8	1.4	3.2
NORTHEAST											
Connecticut	22.7	20.2	125.3	19.0	2.9	2.4	3.7	72.7	7.8	-	66.2
Delaware	1.7	1.8	1.4	1.2	5.2	2.7	2.9	2.1	2.3	1.6	2.4
Maine	1.7	1.8	1.7	1.3	40.0	3.2	3.3	3.2	4.5	5.1	1.1
Maryland	0.8	0.8	3.2	0.8	3.2	15.4	31.1	1.1	2.7	1.3	9.5
Massachusetts	2.4	1.9	27.0	3.5	1.8	2.3	3.2	3.1	3.4	5.8	35.4
New Hampshire	8.9	9.0	11.1	4.4	25.1	4.0	7.1	2.6	3.5	4.2	41.8
New Jersey	1.1	1.1	1.8	3.7	7.2	3.9	5.4	1.7	5.7	2.6	1.5
New York	1.5	1.2	16.4	2.5	1.4	3.3	3.3	2.3	4.7	4.2	17.5
Pennsylvania	0.9	0.8	3.3	3.6	2.2	1.7	2.3	1.4	3.5	1.7	1.0
Rhode Island	1.1	1.1	2.3	1.1	0.8	10.4	10.4	1.5	8.9	-	2.0
Vermont	0.7	0.7	1.9	0.6	0.9	2.3	3.3	1.0	3.8	10.8	0.8
LAKE											
Michigan	0.7	0.7	1.0	0.5	3.5	1.6	2.9	0.4	1.2	1.1	1.3
Minnesota	0.5	0.5	0.5	0.4	2.4	1.1	1.4	0.3	1.0	0.8	2.7
Wisconsin	0.6	0.6	1.9	0.7	1.4	1.9	2.0	1.0	3.6	2.8	1.9
CORN BELT											
Illinois	0.5	0.5	0.5	0.4	0.8	1.6	3.5	0.5	0.7	0.5	1.8
Indiana	0.5	0.5	0.7	0.7	1.0	1.7	2.3	1.0	0.8	0.6	1.9
Iowa	0.5	0.6	0.7	0.4	0.8	4.0	3.4	0.4	1.1	0.6	2.4
Missouri	0.6	0.7	0.8	0.6	1.6	3.5	2.6	2.0	0.8	0.9	1.8
Ohio	0.6	0.6	1.2	0.6	1.0	1.8	3.1	0.5	2.1	0.7	2.9
NORTHERN PLAINS											
Kansas	0.7	0.8	0.5	0.7	4.7	1.1	2.1	2.4	0.5	0.6	3.8
Nebraska	0.6	0.6	0.8	0.5	1.9	4.5	10.9	1.8	1.9	1.0	2.7
North Dakota	0.6	0.5	1.1	0.6	2.6	1.8	2.1	0.7	0.9	1.2	1.8
South Dakota	0.6	0.6	0.7	0.7	1.9	3.1	3.6	0.6	0.9	0.9	2.1
APPALACHIAN											
Kentucky	0.8	0.8	1.0	0.6	0.9	2.6	4.0	1.0	1.1	1.2	1.8
North Carolina	0.5	0.5	0.8	0.5	1.2	2.7	3.0	0.7	2.8	0.9	2.4
Tennessee	0.8	0.8	0.9	0.6	1.1	1.9	2.6	1.1	1.3	0.8	1.5
Virginia	0.9	1.0	1.4	0.6	1.0	1.9	2.2	0.7	1.7	1.6	1.5
West Virginia	0.7	0.7	1.7	0.6	1.5	3.5	2.2	1.0	2.4	2.8	1.5
SOUTHEAST											
Alabama	0.8	0.8	3.1	0.9	0.9	4.1	1.7	0.7	2.7	1.2	1.2
Florida	0.7	0.7	2.5	0.7	1.3	2.8	10.2	2.0	3.0	5.0	2.6
Georgia	0.6	0.6	1.2	0.8	1.3	5.5	6.4	0.6	2.4	1.6	2.5
South Carolina	1.0	0.8	8.3	1.1	3.1	3.4	7.6	2.2	4.0	3.2	2.9
DELTA											
Arkansas	0.5	0.5	0.8	0.7	2.7	1.9	3.3	0.9	0.9	1.1	5.8
Louisiana	0.7	0.8	0.8	1.6	0.9	1.7	2.8	1.3	0.8	0.7	1.3
Mississippi	0.6	0.6	1.3	0.8	1.2	1.9	2.1	1.0	1.4	1.8	2.0
SOUTHERN PLAINS											
Oklahoma	0.7	0.7	0.9	0.5	1.2	1.6	1.8	0.8	0.9	1.2	1.3
Texas	0.4	0.4	1.0	0.4	1.0	1.5	1.7	0.8	0.7	0.7	1.7
MOUNTAIN											
Arizona	2.8	3.1	5.5	3.0	20.5	2.7	3.5	1.9	2.8	4.0	1.0
Colorado	0.6	0.7	0.9	0.8	1.9	1.9	2.1	1.3	1.3	0.9	1.6
Idaho	1.4	1.5	1.0	0.9	12.7	2.6	18.8	1.0	1.3	1.7	2.0
Montana	0.6	0.6	1.0	0.6	1.3	2.4	5.2	0.9	1.0	1.2	2.7
Nevada	4.8	4.8	3.0	1.0	3.5	5.0	9.0	4.3	3.9	8.7	4.6
New Mexico	1.5	1.5	1.5	1.8	2.0	3.1	2.9	1.4	2.4	3.4	3.9
Utah	1.1	1.1	0.9	1.2	0.8	4.3	3.2	3.4	1.4	3.5	2.1
Wyoming	1.3	1.0	5.6	2.3	2.6	2.6	3.9	1.6	3.2	14.4	17.9
PACIFIC											
California	0.4	0.5	0.9	0.5	1.4	1.9	4.7	1.2	0.9	2.5	5.1
Oregon	1.0	1.0	1.0	0.6	2.9	3.4	3.0	1.5	1.2	2.3	6.2
Washington	0.7	0.6	5.0	0.8	2.7	1.8	6.3	1.1	0.6	1.5	2.4
Alaska	3.1	3.3	4.4	1.4	0.9	3.0	3.9	7.2	5.3	-	1.9
Hawaii	2.0	2.0	2.4	1.6	1.7	5.6	7.4	2.9	-	-	3.7

SUMMARY OF FINDINGS

Net cash income for 1999 was $155.4 billion, an average of $72,816 per farm, which included government payments, farm-related income and off-farm income. Off farm income accounted for the majority of net cash income, totaling $120.1 billion. When off-farm income was excluded, the net cash farm income was $35.3 billion, an average of $16,551 per farm. Off-farm income continues to have a significant effect on the loss or gain of cash income to farm operators. When off-farm income is excluded, the number of farm operators with negative cash income increased from 108,796 to 1,117,041 farms. The number of farm operators with net cash gains of $50,000 or more increases when off-farm income is included going from 221,598 to 986,091.

Government payments of $16.7 billion and farm-related income of $9.6 billion accounted for 75 percent of the $35.3 billion net cash farm income in 1999. When government payments and farm-related income are excluded, the net cash income from agricultural sales was $9.1 billion, only $4,243 per farm. There were 1,408,223 farms with negative net cash income from agricultural sales, while 133,548 farms reported $50,000 or more in net cash income from agricultural sales.

The **market value of agricultural products sold** in 1999 was $192.7 billion. The operator's share accounted for $158.1 billion or 82 percent of the total. Approximately 7.0 billion or 3.6 percent of the market value of products sold went to landlords in the form of share payments. Contractors' share of the market value of products sold from farms was $27.6 billion or 14.4 percent of the total.

There were 54,589 farm operators reporting **production contracts** producing $38.8 billion of commodities. Farm operators received $5.5 billion from the contractors, and the contractors provided an additional $19.7 billion inputs and services to farm operators to produce commodities under production contracts. The South region led in market value of production under contract with $19,4 billion, followed by the Midwest region. The leading State in value of production under contract was North Carolina. Broilers with $13,9 billion were the commodity most produced under production contract and accounted for 42 percent of the total.

Farm Assets totaled over $1.55 trillion of which $1.27 trillion was in land and buildings or 82 percent. Farm operators accounted for $1.06 trillion in farm assets used in agriculture or 68 percent of the total. Landlords contributed $493 billion in farm assets of which $480 billion or 97 percent was in land and buildings.

Capital purchases during the year were $28.3 billion. Landlords contributed $1.6 billion or 5.5 percent of the total. The single largest expenditure item for landlords was $730 million, paid for land and irrigation improvements while operators spent $6.5 billion on building and structures.

Operating expenses for 1999 were $159.7 billion. Landlords contributed only $10.7 billion, 6.7 percent of the total. The single largest expenditure item for landlords was $3.6 billion, paid in real estate taxes. More than 68 percent or $7.2 billion of the total expenses paid by landlords went to farms grossing $100,000 or more in sales. Landlords contributed a total of 11 percent of expenses for grain farms compared to 4.8 percent for Cattle farms.

Debt was reported by 46 percent of the farm operators. Farm operators with debt accounted for 79 percent of the value of products sold in 1999. Also, 52 percent of the debt reported by farm operators was on farms with a debt-to-asset ratio of 40 percent or less, and there were 71,580 farms reporting a debt-to-asset ratio of 71 percent or more. Debt was closely associated with the size of the farm. While 83 percent of the farms with more than $100,000 in sales reported debt, only 37 percent of the farms with less than $25,000 in sales had debt.

Landlords carried 17 percent of the total debt. Debt was reported by 19 percent of all landlords. The major source of financing for landlords was Commercial and Savings banks, with $11.1 billion of the total $28.5 billion of debt carried by landlords in 1999. Landlords with debt accounted for 72 million acres or 17 percent of the acres rented to farm operators.

Real estate taxes The real estate taxes were $8.3 billion or 5 percent of the cash operating expenses in 1999. Operators paid $4.7 billion or 57 percent of the total. The value of real estate taxes paid varied from a low of $.59 per acre in New Mexico to a high of $84.29 in Rhode Island. The cost of real estate taxes per $100 in value of land and buildings was $.64.

Agricultural land owned, excluding public landlords, there are 3,412,080 owners of agricultural land. About 58 percent of the owners are also owner-operators and account for 58 percent of the land owned and used in agriculture. Nonoperator-owners with 390

million acres account for 94 percent of the rented land used in agriculture.

Some comparisons of owner-operators and nonoperator-owners are:

The value of land and buildings per acre was $1,378 for nonoperator-owners compared to $1,488 for owner-operators. While 57 percent of the acres owned by nonoperator-owners was cropland, 39 percent of land owned by owner-operators was cropland.

Current land owners owned 700 million acres in 1987 or an equivalent of 75 percent of the acres they owned in 1999. Land owners purchased 17.2 million acres in 1999. Nearly 38 percent of the current land owners reported purchasing 270.3 million acres of land from 1988 to 1998.

Farm operators There were 1,435,785 farms reporting off-farm work, 720,673 with either the operator or a spouse working off farm, and 715,112 where both the operator and spouse worked off farm. Of the operators reporting weeks of off-farm work, 12 percent worked less than 27 weeks and 72 percent worked 50 weeks or more. The relationship was nearly the same for spouses working off the farm; 10 percent worked less than 27 weeks and 68 percent worked 50 weeks or more.

Landlords The survey estimate is 2,289,672 landlords with 419 million acres rented to farm operators. The total includes 31,915 public landlords controlling 26 million acres rented to farm operators. Public landlords are State or Federal agencies, railroad companies, or Indian reservations. Of the 2,257,757 nonpublic landlords, 82 percent reported only one renter. Corporation landlords controlled 37 million of the 393 million acres rented to farm operators by nonpublic landlords. The total value of land and buildings rented to farm operators by nonpublic landlords was $479,774 million, of which $63 billion or 13 percent was in the value of dwellings or other structures.