GAO

United States General Accounting Office

Report to the Chairman, Committee on Agriculture, Nutrition, and Forestry, U.S. Senate

July 1992

DATA COLLECTION

Opportunities to Improve USDA's Farm Costs and Returns Survey

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Resources, Community, and
Economic Development Division

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July 30, 1992

The Honorable Patrick J. Leahy
Chairman, Committee on Agriculture,
Nutrition, and Forestry
United States Senate

Dear Mr. Chairman:

In response to your request, this report discusses the U.S. Department of Agriculture's (USDA) Farm Costs and Returns Survey (FCRS). Specifically, the report covers the survey's scope and design as they affect the quality and reliability of the data generated, USDA's procedures for granting access to unpublished data, and the level of communication that exists between USDA and other users of FCRS data. The report contains recommendations to the Secretary of Agriculture that are aimed at improving the overall quality and reliability of the FCRS and the estimates it generates.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 10 days after the date of this letter. At that time, we will send copies to the appropriate House and Senate committees and subcommittees; interested Members of Congress; the Secretary of Agriculture; the Director, Office of Management and Budget; and other interested parties.

This work was performed under the direction of John W. Harman, Director, Food and Agriculture Issues, who can be reached on (202) 275-5138. Other major contributors to this report are listed in appendix II.

Sincerely yours,

J. Dexter Peach
Assistant Comptroller General

Executive Summary

Purpose

The Farm Costs and Returns Survey (FCRS) is the U.S. Department of Agriculture's (USDA) primary tool to obtain detailed data on farmers' expenditures and incomes and to generate estimates of the financial health of U.S. farms. The FCRS' results are essential for agricultural research. In order to make the best use of the FCRS, USDA must ensure that the survey generates estimates properly measuring farm conditions, that the methods used to obtain the data are sound, and that opportunities are afforded for widespread access to the data. Therefore, the Chairman, Senate Committee on Agriculture, Nutrition, and Forestry, asked GAO to review (1) the FCRS' scope and design as they affect the quality and reliability of the data generated, (2) USDA's procedures for granting access to unpublished data, and (3) the agency's communication with users of FCRS data.

Background

The FCRS, which began in 1984, responds to a 1973 mandate requiring the Secretary of Agriculture to provide yearly national estimates of the costs of producing certain commodities. USDA uses these estimates as guides for adjusting support prices for its farm programs. The survey also continues USDA's long-standing tradition—dating back to 1913—of estimating farm income.

Administered to a statistically representative sample of about 24,000 farmers in 1990, the FCRS consists of lengthy questionnaires and face-to-face interviews. USDA generalizes from the data collected to estimate for all farms the costs of production and incomes. USDA publishes its estimates in a series of annual reports that provide financial statistics on the overall farm sector. In 1991, USDA spent about $6.24 million to produce and administer the survey. In 1992, the agency expects to spend about $6.55 million.

Results in Brief

Users of the FCRS data generally consider the survey to be reliable for generating estimates of farmers' expenditures and incomes at the national and regional levels. Notwithstanding this, there are several ways in which USDA's methods for conducting the survey may limit the quality and reliability of the data and the estimates generated. First, in calculating response rates, USDA includes individuals who do not qualify as farmers—a practice that, in GAO's opinion, overstated response rates in 1990 by nearly 6 percent. Second, USDA has not determined if nonrespondents to the survey differ from respondents, yet by assuming that both groups are identical, the agency may be generating biased estimates. Knowing whether or not the two groups differ is particularly important for farms

with large sales because these farms have the lowest response rates. Third, when farmers cannot or will not complete all of the survey questions, USDA allows its staff to provide answers, yet the agency does not require that such action be documented. Therefore, users of the data cannot know the true source of them or the reliability of the FCRS estimates.

USDA's definition of a farm—which, since 1975, has been an establishment with $1,000 or more in yearly sales—results in the survey's including many small farms that contribute little to the overall production of the farm sector. In GAO's opinion, this definition is outdated because it does not account for inflation, and including small farms in the FCRS is not an efficient use of resources.

By law, USDA has established written criteria regarding access to unpublished FCRS data to protect the privacy of the voluntary respondents to the survey. However, at times, USDA's reasons for denying access go beyond the written criteria, causing confusion among data users as to how USDA makes its decisions to grant or deny access.

Some data users, primarily from land grant universities, contend that there needs to be better communication between them and USDA because FCRS data are essential to their research. Although USDA has some communication mechanisms in place, the agency recognizes that a communication gap between users of its data still exists.

Principal Findings

Scope and Design of the FCRS May Limit the Quality and Reliability of the Data

Surveys' response rates, which represent the percentage of people sampled who acceptably respond, are considered by statisticians to be indicators of how well the surveys are administered. In calculating response rates for the FCRS, USDA includes individuals who were in the sample but who did not qualify as farmers that year because they did not grow, sell, or store any agricultural products or receive any government payments. Thus, USDA overstates the FCRS' response rates, in GAO's opinion. While USDA believes its method of calculating response rates does not affect the quality and reliability of the FCRS data, GAO found that by excluding nonqualifying farmers, the FCRS' response rate in 1990 would have been 65 percent instead of 71 percent as reported by USDA.

According to USDA, nearly one-third of all potential respondents to the FCRS (about one-half of those with yearly sales of $500,000 or more) do not respond because they are too busy or the information requested is too personal. Nevertheless, USDA assumes, without supporting evidence, that nonrespondents are identical to respondents in the same state who are believed to have similar incomes. By making this assumption, USDA does not recognize the potential for bias in its estimates. If nonrespondents are meaningfully different from respondents, then the estimates derived from the FCRS could be biased and the quality and reliability of the data diminished. This would be particularly important for estimates generated for large farms that have the lowest response rates and account for the highest agricultural sales.

At times, USDA considers responses to the FCRS questionnaires to be incorrect or incomplete. In such cases, USDA allows its staff to edit or impute answers. However, because USDA does not require its staff to document the adjustments made, it does not know the extent of these adjustments, and data users cannot know the source of the data or the reliability of the estimates generated.

Some data users contend that small farms, such as those with yearly gross sales of less than $10,000—which account for nearly one-half of all U.S. farms but only 6 percent of the total expenditures—should be eliminated from the FCRS because those farms have little impact on overall farm operations. Even if USDA were only to update its definition of a farm—which in 1975 established $1,000 in yearly sales as a threshold—to account for the effects of inflation, at least 900 small farms could be eliminated. Using the FCRS to survey small farms is not an efficient use of USDA's resources, in GAO's opinion.

Some Users of Unpublished FCRS Data Find USDA's Procedures on Access Unclear

By law, USDA must ensure the privacy of its voluntary respondents. At the same time, it is important that USDA assist researchers by providing access to unpublished FCRS data generated by these respondents. USDA applies stringent written criteria to comply with the requirement to protect the identity of respondents. At times, this requirement causes the agency to deny access to data. USDA also denies access for reasons other than to ensure privacy, such as when the agency believes data on specific commodities need to be "cleaned up." In such instances, USDA has no written criteria describing its procedures for deciding whether to grant or deny access, a situation that causes confusion and misunderstanding among many data users.

Some Researchers Contend That Communication Between Them and USDA Needs to Improve

Because land grant university researchers are primary users of FCRS data, they view communication between them and USDA as essential. Yet researchers GAO spoke with contend that their communication with USDA needs to improve to facilitate resolutions to problems concerning such things as access to data and to discuss issues pertaining to the quality and reliability of the survey. Although USDA has some communication mechanisms in place, the researchers GAO spoke with were not very familiar with these mechanisms. Furthermore, since 1985, USDA has recognized the need for better lines of communication with data users.

Recommendations to the Secretary of Agriculture

GAO makes several recommendations to the Secretary of Agriculture aimed at improving the quality and reliability of the FCRS and its estimates. Among the recommendations are that the Secretary should (1) adopt a method of calculating response rates that excludes individuals who do not qualify as farmers; (2) determine if nonrespondents and respondents are significantly different in order to identify any potential bias in the estimates; (3) evaluate the level of data editing and imputation that occurs in the survey so that data users will know how much information is obtained from the survey's respondents and how much is obtained from other sources; (4) change the definition of a farm to eliminate small farms from the FCRS or develop less costly methods for obtaining data on small farms less frequently; (5) establish written criteria that clearly state how decisions for granting or denying access to unpublished FCRS data on specific commodities are made; and (6) establish with data users additional lines of communication devoted specifically to discussing concerns about the FCRS.

Agency Comments

In commenting on a draft of this report, USDA indicated that it would take action in response to recommendations 1, 3, and 5 but that because implementing recommendation 2 would be costly, the agency was developing alternatives to improve response rates. For recommendation 4, USDA stated that data on small farms were necessary, but GAO believes such data should be obtained by methods other than the FCRS. For recommendation 6, USDA does not believe that a forum designed solely to discuss the FCRS would be cost-effective, but GAO contends that a communication problem regarding the FCRS exists. USDA's comments and GAO's evaluation of them are included as appendix I. In response to USDA's comments, GAO has made appropriate changes in the report.

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Abbreviations

COP	cost of production
ERS	Economic Research Service
FCRS	Farm Costs and Returns Survey
GAO	General Accounting Office
GNP	gross national product
NASS	National Agricultural Statistics Service
USDA	U.S. Department of Agriculture

Introduction

The U.S. Department of Agriculture (USDA) conducts an annual Farm Costs and Returns Survey (FCRS) to obtain detailed data on expenditures and incomes associated with the production and sale of crops and livestock by U.S. farms. The survey responds to a congressional mandate that the Secretary of Agriculture annually update the average cost of production (COP) for several agricultural commodities. The survey also continues USDA's long-standing tradition—dating back to 1913—of estimating farm income.

The FCRS, which began in 1984, replaced USDA's Farm Production Expenditure Survey and various surveys of the costs of production to provide one statistically reliable survey of the farm sector. According to USDA, implementing the FCRS was essential because previous surveys were not large enough to enable USDA to perform distributional analysis by the type or size of farm by region, or to develop microeconomic indicators, such as debt-to-asset ratios, for the farm sector.

The FCRS—the primary tool used by USDA to track farm expenses and income each year—is administered to a statistically representative sample of farmers in the 48 contiguous states. Using lengthy questionnaires, USDA-funded data collectors (or enumerators) conduct face-to-face interviews with farmers to obtain specific information on their farm operations. USDA then generalizes from the FCRS data to make COP and income estimates that measure the overall health of the U.S. farm sector.

In fiscal year 1991, USDA spent approximately $6.24 million to produce and administer the FCRS, and in 1992, the agency expects to spend about $6.55 million. These expenditures do not include costs that USDA incurs to perform its various economic analyses once the FCRS data are collected.

Need for and Uses of FCRS Data

The mandated need for USDA to estimate the costs to produce various crops and livestock goes back many years, even prior to the FCRS. The Agriculture and Consumer Protection Act of 1973, for example, directed USDA to conduct a nationwide study of the COP for several commodities: wheat, feed grains (corn, sorghum, barley, and oats), cotton, and dairy products. The Food and Agriculture Act of 1977 extended the scope of the study to include rice and required USDA to use the COP estimates to adjust support prices for certain federally funded commodity programs. Subsequent legislation in 1981 and 1985 revised that requirement so that now COP estimates are, for the most part, used only as guides for adjusting

support prices. Thus, since 1973, there has been a continuing congressional requirement for USDA to obtain reliable national COP data.

USDA uses the data collected by the FCRS to estimate (1) the costs to produce various crops and livestock (and the relative importance of various production expenses) and (2) the income of farmers and the financial situation of different types of farms. USDA also uses FCRS data to construct the index of prices paid for commodities, services, interest, and taxes (known as the parity index); to measure quantities of goods and services purchased by farmers; to estimate net farm income, cash income, business income, and cash flow; and to generate balance sheet accounts—including assets, liabilities, and equity—that are used to assess the wealth of the U.S. farm sector.

In addition to USDA, the Department of Commerce's Bureau of Economic Analysis uses estimates derived from the FCRS to help prepare its national income and product accounts, gross national product (GNP) estimates, and regional economic accounts. Furthermore, FCRS data are used for modeling research because the survey has been designed to cover almost all the production of the farm sector and because the FCRS is a probability-based survey.[1]

Agencies Responsible for the FCRS

USDA's National Agricultural Statistics Service (NASS) administers the FCRS, collecting data from individual farmers during February and March of each year. In July, NASS publishes the initial results of the survey in its Farm Production Expenditures report, which provides estimates of national and regional production expenditures. Subsequently, in August, NASS publishes the final results, which include estimates of expenditures for crop and livestock operations as well as estimates of national and regional expenditures by farms of different sizes (determined by the gross value of sales).

USDA's Economics Research Service (ERS) then analyzes the FCRS data to generate many estimates of the farm economy. In particular, ERS' Farm Sector Financial Analysis Branch uses FCRS data to estimate financial statistics for the farm sector, farm businesses, and farmers' households. ERS publications that rely on FCRS and other data include the annual Economic Indicators of the Farm Sector series, with such reports as Costs of Production—Major Field Crops, Costs of Production—Livestock and

[1]In this type of survey, a sample is selected by some random method to obtain information or draw conclusions about a universe. Each possible item in the sample has a known (nonzero) probability of being selected from the universe.

Dairy, National Financial Summary, State Financial Summary, Production and Efficiency Statistics, and Farm Sector Review. Other ERS publications that rely on FCRS data include Financial Characteristics of U.S. Farms and various Situation and Outlook reports.

The FCRS Design

The FCRS is designed to cover all farms in the 48 contiguous states that sold or normally would have sold at least $1,000 of agricultural products during the previous year. The FCRS is a multiple-frame survey; that is, its sample is randomly selected from two sources. One source—the list frame—consists of all known operators of medium-sized to large farms, stratified into groups of farms that are believed to be similar in size and type or in their production of commodities for which USDA must estimate the costs of production. The sample selected from the list frame is a simple stratified sample taken from each state. The second source—the area frame—consists of farms that were not on the list frame, usually those with the smallest expenses and incomes.

In 1990, about 24,000 farmers were drawn independently from these two sources to make up the FCRS sample. From the selected sample of farmers, detailed data are collected on a variety of items associated with the previous year's operations, including not only the COP and farm income, but also demographics. NASS administers three separate versions of the FCRS questionnaire—one to determine a farmer's expenditures; another, the COP for particular commodities; and the third, a farmer's resources. The questionnaire on expenditures collects detailed data on general expenditures for the entire farm operation, while the questionnaires on the COP collect less detailed data on general expenditures and specific production expenses for each commodity of interest. Similarly, the questionnaire on a farmer's resources collects less detailed data on general expenditures, but it also collects detailed information on characteristics of the household that affect decisions made by the farmer, such as the amount of income all household members receive from sources other than the farm. The sample for each questionnaire differs. For example, in 1990, for the questionnaire on expenditures, the sample was 12,000; for the questionnaires on the COP, 8,288; and for the questionnaire on farmers' resources, 3,713.

The questionnaires on the COP cover individual commodities on a rotating cycle, whereas the other two questionnaires cover similar operations each year. The list below shows the crops and livestock covered by the COP questionnaires in 1990, 1991, and 1992, as well as those planned for 1993:

1990	1991	1992	1993
Cow-Calf	Corn	Barley	Dairy
Soybeans	Peanuts	Sugarbeets	Burley tobacco
Sorghum	Flue-cured tobacco	Sugarcane	
	Cotton	Rice	
		Hogs	

In June 1985, USDA's Economic and Statistics Review Panel reported to the Secretary that the size of the FCRS sample was not large enough to allow the agency to estimate the COP or income in individual states. The panel recommended that the survey sample be expanded so the FCRS could become the definitive data base for financial statistics and policy analyses of the farm sector at both the national and state levels.

On May 9, 1991, the Chairman, Senate Committee on Agriculture, Nutrition, and Forestry, while considering a proposal by USDA for additional funding to double the size of the FCRS sample, asked us to determine if the FCRS is capable of supplying reliable data on the COP and net farm income at the state level.[2] On the basis of a limited review of a sample of state-level estimates generated by the FCRS, we found that many estimates did not meet USDA's standard for statistical reliability, making certain COP and income estimates unacceptable for publication. Consequently, on May 20, 1991, in a letter to the Chairman, we responded that the FCRS, as currently designed, could not provide state-level estimates with the level of statistical reliability desired by USDA. We concluded, however, that before any decision was made to increase the FCRS sample, the Congress needs assurance that USDA has (1) substantiated the need for and use of state-level data, (2) determined whether a doubling of the sample is the exact amount of increase needed to accomplish the desired statistical reliability, and (3) evaluated how its overall agricultural statistics would improve as a result of an increased sample.

Objectives, Scope, and Methodology

In addressing the issues raised by the Chairman, Senate Committee on Agriculture, Nutrition, and Forestry, in his February 15, 1991, letter and his May 9, 1991, request, we agreed to review

[2]On February 15, 1991, the Chairman had requested that we determine if the FCRS focuses on the proper indicators of farms' well-being and whether the methods and approaches used to gather and analyze the data are sound. His May 9, 1991, request thus supplemented the earlier request.

- the FCRS' scope and design as they affect the quality and reliability of the data generated,
- USDA's procedures for granting access to unpublished FCRS data, and
- the level of communication that exists between USDA and other users of FCRS data.

We agreed with the Chairman's office not to attempt to determine the accuracy or usefulness of the survey in measuring the financial health of U.S. farms because such an effort would be costly and time-consuming and therefore not the best approach for us to take at this time.

To obtain information regarding each of these objectives, we interviewed cognizant USDA officials at NASS and ERS offices in Washington, D.C. We also discussed various aspects of the FCRS with major non-USDA data users at five land grant universities identified for us by USDA officials (University of Maryland, Texas A&M University, Iowa State University, Cornell University, and the University of Missouri). At both the USDA offices and the universities, we reviewed pertinent records and reports on the financial conditions of farms.

In addition, we reviewed pertinent legislation requiring USDA to develop yearly COP estimates and to protect the identity of individual respondents. We also discussed with officials in USDA's Office of General Counsel the legal requirements to maintain confidentiality. Furthermore, we obtained USDA's procedures, regulations, and guidelines pertaining to the FCRS and to the confidentiality of and access to data.

We conducted a 1-day workshop at GAO headquarters that included participants from four of the five land grant universities mentioned above (no one participated from the University of Maryland), plus participants from seven other land grant universities,[3] to obtain these researchers' views on (1) the survey's scope and design and the methodologies used for analyzing and reporting data, (2) requirements concerning the confidentiality of and access to data, and (3) the level of communication between land grant universities and USDA. The participants at our workshop were identified, either by officials from USDA or the universities, as the primary non-USDA users of FCRS data.

We also obtained information on the procedures followed for gathering FCRS data from farmers by interviewing officials at three state NASS offices

[3]The seven additional participants were from the Universities of Delaware, Minnesota, North Dakota, Nebraska, and Florida, and from Ohio State and New Mexico State Universities.

(Kansas, Ohio, and Texas). Kansas was selected because it had a relatively low response rate (60 percent) during the 1986-90 survey period; Ohio, because it had a moderate response rate (69 percent); and Texas, because it had a high response rate (76 percent). At two of the three state NASS offices, we reviewed a small nonrepresentative sample of FCRS questionnaires to determine how farmers provided data and how much USDA-funded enumerators and state office reviewers adjusted and/or supplemented the data gathered from the respondents.

Lastly, we met with officials at Department of Commerce's Agricultural Division to obtain information on the Census of Agriculture which is conducted every 5 years and to determine how data gathered through the FCRS is used by Commerce.

We conducted our review between April 1991 and April 1992, in accordance with generally accepted government auditing standards. We obtained written agency comments and incorporated them where appropriate in this report. (See chs. 2 and 3 for summaries of USDA's comments and our evaluation of them. App. I includes a reproduction of the comments and our responses to individual comments.)

Scope and Design of the FCRS May Limit the Quality and Reliability of Data

The FCRS is USDA's primary tool for estimating, at the national and regional levels, the financial health of U.S. farms. The users of FCRS data generally consider the survey reliable for generating these estimates of farmers' expenditures and incomes. Nevertheless, our review found several ways in which USDA's methods for conducting the survey may to some extent limit the quality and reliability of the data and the estimates generated.

In calculating response rates, for example, USDA includes individuals who do not qualify as farm operators—a practice that overstates response rates, in our opinion. Also, in assuming that nonrespondents to the survey, who represent about one-third of the individuals requested to participate, are identical to respondents, USDA could be introducing bias into the FCRS estimates and thus diminishing their overall quality and reliability. Furthermore, USDA has not studied the extent to which its staff adjust the data gathered from farmers who do not answer all of the survey questions. Thus, the impact of USDA's adjustments on the overall quality and reliability of the estimates is unknown.

In addition, we found that USDA's definition of a farm—an establishment with $1,000 of sales per year—has not been updated since 1975 to even account for inflation. Consequently, some very small farms that contribute little to the overall U.S. farm economy continue to be surveyed.

Including Individuals Who Do Not Qualify as Farmers Overstates Response Rates

Response rates[1] for the FCRS as calculated by NASS are overstated, in our opinion, because they include individuals whom the agency later identifies as nonqualifying (nonfarm) operators. While USDA believes its method of calculating response rates does not affect the quality or reliability of the FCRS data, we found that, by excluding nonqualifying individuals, the overall response rate in 1990 would have been about 6 percent less than the rate reported by USDA.

NASS classifies its FCRS sample of potential respondents into four significant categories. The first three categories include farm operators who (1) completed the questionnaire, (2) refused to be surveyed, or (3) were inaccessible. The fourth category includes those individuals who did not complete the questionnaire because, according to the USDA-funded enumerators, they did not fit USDA's definition of a farm operator. This

[1]Response rates, which represent the percentage of those sampled who acceptably respond to the questionnaires, are considered by statisticians to be indicators of how well surveys are administered. In general, the higher the response rate, the more likely the survey sample will truly represent the population from which it was drawn.

group includes individuals in the sample who did not grow, sell, or store any agricultural products or receive any government payments that year.

NASS' Statistical Methods Branch calculates response rates by adding together the number of qualifying farm operators who completed the questionnaire and the individuals in the fourth category (whom NASS refers to as "screen outs"), then dividing that total by the sum of all the categories. Thus, screen outs who should not have been in the survey sample in the first place are included in the response rate calculations. Including screen outs in the calculations overstates the response rate for the qualifying farm operators. Table 2.1 shows, by agricultural region, how response rates would decrease if screen outs were eliminated from the calculations.

Table 2.1: 1990 FCRS Response Rates Calculated With and Without Screen Outs

Region	Response rates (percent)	
	With screen outs	Without screen outs
Northeast (Conn., Del., Me., Md., Mass., N.H., N.J., Pa., R.I., Vt.)	73.9	67.7
Lake States (Mich., Minn., Wis.)	68.9	64.8
Corn Belt (Ill., Ind., Iowa, Mo., Ohio)	66.3	58.1
Northern Plains (Kan., Neb., N.D., S.D.)	53.7	47.9
Appalachian (Ky., N.C., Tenn., Va., W.Va.)	83.7	79.6
Southeast (Ala., Fla., Ga., S.C.)	79.9	74.1
Delta (Ark., La., Miss.)	79.2	74.3
Southern Plains (Okla., Tex.)	72.9	69.8
Mountain (Ariz., Colo., Idaho, Mont., Nev., N.M., Utah, Wyo.)	69.2	65.2
Pacific (Cal., Ore., Wash.)	76.4	72.5
All 48 states surveyed	70.8	65.2

As the table indicates, if screen outs were eliminated from the calculations, there would be a 5.6-percent decrease in the response rate for the 48 states surveyed, while decreases for regions would vary from a low of 3.1 percent in the Southern Plains to a high of 8.2 percent in the Corn Belt. We believe that the lower response rates, calculated by excluding screen outs, are more useful indicators of how well the FCRS has been administrated.

Assumptions About Nonrespondents Could Bias the FCRS Estimates

According to USDA's calculations, about 30 percent of the potential respondents in the FCRS sample do not respond to the survey questionnaires. (This figure would be 35 percent if screen outs were excluded.) Nevertheless, NASS assumes, without any supporting evidence, that the characteristics of nonrespondents are identical to those of respondents in the same state who are believed to have similar incomes. If the agency is incorrect in its assumption and the two groups are significantly different, then the estimates NASS generates from the FCRS data could be biased, and the quality and reliability of the data diminished. It is important to know if data are biased because the estimates may be linked to policy decisions regarding USDA's price and income support programs.

The extent to which bias in the FCRS estimates occurs depends on (1) the level of nonresponse and (2) the degree to which nonrespondents differ from respondents. When nonresponse rates are near zero, bias in the estimates is minimal and, therefore, not an issue. However, when nonresponse rates are high, bias in the estimates may be substantial, especially when the nonrespondents are meaningfully different from the respondents. When a large number of the potential respondents do not respond to the FCRS, the survey estimates may differ considerably from what they would have been if everyone had responded. In other words, a high nonresponse rate may bias the estimates, causing the user of the data to draw erroneous conclusions about the health of the U.S. farm economy.

According to NASS, approximately one-half of the selected farm operators with sales of $500,000 or more did not respond to the 1990 FCRS questionnaires. Responses obtained from these operators are important, however, as the 1987 Census of Agriculture indicated that this group accounts for nearly 40 percent of the value of agricultural products sold. Because farm operators with high sales account for such a significant portion of the overall value of products, it is particularly important to avoid making assumptions about them.

Nonresponse to survey questionnaires may be caused by several external factors, including the number of times a farm operator has been contacted in the past, the training of the enumerators, and/or the anticipated length of the interview. Nonresponse may also be caused by other factors as well, as identified in a December 1991 research project conducted by NASS in conjunction with its 1990 survey. According to the report based on that project, when farm operators were asked why they refused to participate in the survey, their three most frequent responses were that they (1) would

not take the time/were too busy, (2) would not give a reason, or (3) felt the information requested was too personal.

NASS has not determined if nonresponse to the FCRS questionnaire presents a problem, although the agency's Survey Research Branch is currently investigating the effect of bias in the FCRS data. In this regard, we note that one generally accepted way to examine for bias in the estimates is to compare key selected characteristics of nonrespondents and respondents to ensure that the two groups are similar. But because NASS has not made such a comparison and, therefore, does not know if or how nonrespondents differ from respondents, the agency cannot at present determine the extent to which bias in the FCRS estimates exists.

Extent of Adjustments to FCRS Data by USDA Staff Is Unknown

When respondents provide obviously incorrect answers or when respondents refuse or are unable to answer individual questions on the FCRS questionnaires, USDA staff are allowed to correct or supply answers in order to consider the forms complete. However, because USDA does not require its field office staff to document the level of farmers' nonresponse to particular questions or the extent of adjustments made (termed "data editing/imputation"[2]), data users cannot know the true source of the data or the reliability of the FCRS estimates. If USDA were to study this issue and eliminate those questions for which answers generally come from sources other than the farmers, then the length of the questionnaires, and the consequent burden to respondents, could be decreased.

Data editing/imputation may occur at two points in the process. First, according to the FCRS Supervising and Editing Manual, the statistician in the state NASS office should attempt to impute a value for each unanswered question. State statisticians can use various sources to obtain the values they impute, such as questionnaires from similar types of farms, previous years' regional FCRS data published in both NASS and ERS reports, and information obtained from local USDA and tax offices.

Second, ERS can impute values for over 100 questions if the state statistician cannot. These questions ask about such things as the depreciation of farm equipment, income from sources other than the farm,

[2]In this report, we do not differentiate between data editing and imputation because we were unable to obtain a clear distinction of each activity from USDA. In our opinion, data editing occurs when data obtained directly from a respondent are obviously incorrect and in need of correction (such as when too many zeroes are entered). Data imputation, on the other hand, occurs when the respondent would not or could not provide the data and, therefore, sources other than the respondent were used to obtain the data.

and landlords' share of payments received for participating in government programs. ERS uses a variety of sources to obtain these values, including Commerce's Census of Agriculture.

Data Editing/Imputation by State NASS Offices

Statisticians at the three state NASS offices we visited did not know the extent to which farm operators provided the FCRS data themselves or the extent to which agency staff had edited or imputed data. Therefore, we reviewed a small selection of about 20 completed FCRS questionnaires at two of those offices to learn more about the issue of data editing/imputation. We found, in every questionnaire, that some data editing/imputation had taken place.

During our review of the FCRS questionnaires, we did not attempt to systematically determine which entries constituted data editing and which ones constituted data imputation. We did, however, observe instances in which sources other than the farm operators were used to obtain entries. In one case, for example, we found that the operator refused to provide prices received for certain commodities because he believed such information "was no one's business." In that case, the state statistician imputed values by multiplying the acres dedicated to each commodity by the prevailing market prices. The state NASS office staff told us, however, that they had no way of knowing if, in fact, the imputed values truly reflected the prices received by that particular farm operator.

Supervisory enumerators we spoke with at the three state NASS offices identified a number of questions that are often not answered by farm operators, either because they do not know the answers or because they choose not to provide them. These questions are the ones most likely to require data imputation. On the expenditure section of the questionnaires, these questions ask about costs—as they relate to the particular commodities being surveyed—for such things as fuel, fertilizers and chemicals, debt/interest, supplies and repairs, depreciation, storage fees, and taxes paid by landlords. On the income section of the questionnaires, the questions ask about such things as government payments, income from sources other than the farm, and the level of debt.

Data Editing/Imputation by USDA Headquarters

After data editing/imputation has taken place at the state NASS offices and the data have been reviewed for quality and consistency, computer edits are executed by the NASS headquarters office in Washington, D.C., for further checks of quality and completeness. A later data review by state

and headquarters staff is also performed to document all atypical reports. When NASS is satisfied with the FCRS data base, it is transmitted to ERS for additional refinement and analysis. At that point, values for over 100 individual questions on the FCRS questionnaire may be imputed by ERS using sources other than farmers if answers are missing.

The level of data editing/imputation and its effect on overall FCRS estimates has been addressed to some degree by NASS and ERS. For example, an August 1991 report by NASS covering two states indicated that while the effect of its data editing/imputation on overall estimates was very small in Iowa, the effect was somewhat larger in North Carolina. The report's recommendations highlighted the need for (1) a manual to standardize editing practices across states, (2) procedures and notations to identify and capture missing items, and (3) audit trails that identify the sources of the data imputed. ERS, on the other hand, analyzed the effect of its data editing/imputation on overall estimates for 77 questions asked in 1990 and concluded that, in most cases, the effect was insignificant.

We did not attempt to duplicate the analyses discussed above. However, on the basis of data ERS provided us, we found that for some questions on the FCRS questionnaires—such as those pertaining to the depreciation of equipment, the share of government payments received by landlords, and a farm's assets—the estimates derived before and after ERS' data imputation differed from 0.1 percent to 27.4 percent. Five estimates differed by more than 10 percent, and eight estimates differed by from 6 percent to 10 percent. In light of these findings and the NASS report recommendations cited above, we question ERS' conclusion that data editing/imputation does not significantly effect the survey estimates.

The Definition of a Farm, Which Has Not Changed Since 1975, Is Outdated

Since 1975, USDA has defined a farm as an establishment with $1,000 or more in yearly sales. (USDA's definition is also used by the Census of Agriculture.) This definition is outdated because it does not account for inflation. Furthermore, it causes USDA to include small farms in its FCRS sample that have very little impact on overall farm expenditures and incomes.

Using USDA's definition of a farm, NASS randomly selects the FCRS sample from all farms that are estimated to have sold $1,000 or more of agricultural products during the previous year. As shown in table 2.2, of the U.S. farms in 1990, roughly one-half—47.6 percent—had gross sales of less than $10,000.

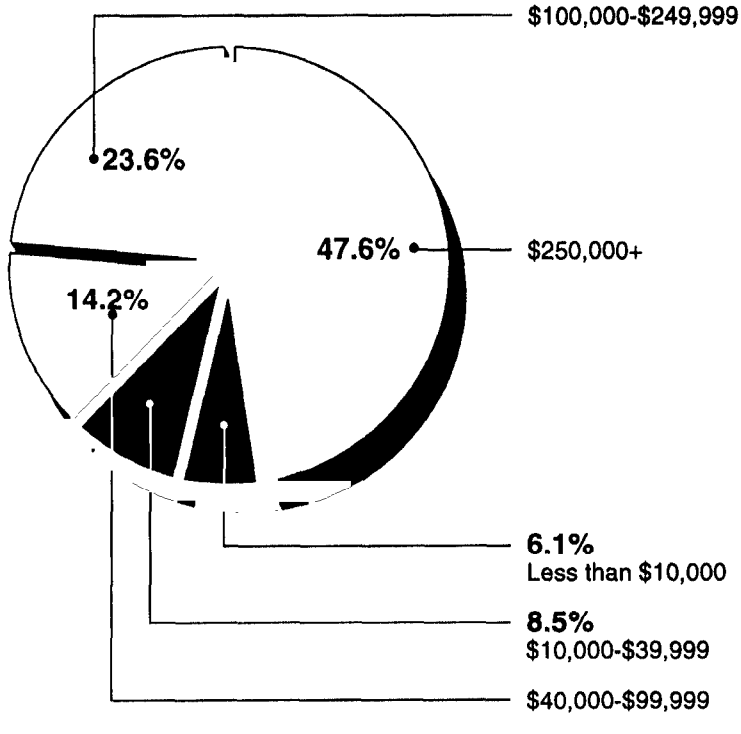
Table 2.2: Percentage of U.S. Farms, by Gross Value of Sales, 1990

Gross value of sales	Percentage of farms
$250,000 and over	6.0
$100,000 - $249,999	11.0
$40,000 - $99,999	13.7
$10,000 - $39,999	21.7
Less than $10,000	47.6

Source: USDA's Farm Production Expenditures, August 1991.

Yet, as shown in figure 2.1, farms in 1990 with gross sales of less than $10,000 accounted for only about 6 percent of the total expenditures. (In terms of the value of the agricultural products sold, the 1987 Census of Agriculture showed that farms with gross sales of less than $10,000 accounted for 2.5 percent of total sales.)

Figure 2.1: Percentage of Expenditures, by Farms With Different Levels of Gross Sales, 1990



Source: USDA's Farm Production Expenditures, August 1991.

So, while large in number, farms with gross sales under $10,000 have a minor impact on overall farm operations. If small farms were eliminated entirely from the survey sample, the FCRS could still meet its mandated objective of measuring expenditures and incomes associated with the production of major agricultural commodities. For USDA to include small farms in the FCRS is not, in our opinion, an efficient use of resources. If USDA needs expense and income data on small farms, alternative ways to obtain the data would be to design a shortened mailed version of the FCRS or a telephone survey. Also, data on small farms could be collected less frequently, such as once every 5 years.

Retaining the 1975 definition of a farm does not take into consideration the effects of inflation. Since 1975, inflation has decreased the real value of the dollar by about one-half, according to "Implicit Price Deflators for Gross National Product, 1929-1990," published in the Economic Report of the President. Therefore, it would take $2,000 today to purchase the same amount of goods purchased for $1,000 in 1975. (Even if the more conservative Wholesale Price Index for Agriculture is used, $1,000 in sales in 1975 inflated to 1991 prices would be about $1,400.) If USDA were to change its definition of a farm to account for inflation, some very small farms could be eliminated from the FCRS. In the 1990 survey, for instance, about 900 farms—7.5 percent of the potential respondents—could have been eliminated from the sample for the expenditure version of the survey alone if a threshold of $2,000 in sales had been used.

Furthermore, land grant university researchers at our workshop, as well as one of the enumerators we interviewed, indicated that using the FCRS to survey small farms may be burdensome and unproductive, as the farmers in this category answer very few of the questions. Nevertheless, USDA still requires that costly face-to-face interviews be conducted with these farmers.

Conclusions

The FCRS is generally considered reliable for estimating the financial condition of U.S. farms. However, some practices that USDA uses may diminish the overall quality and reliability of the data and the estimates generated. For example, by considering respondents who do not qualify as farm operators in its response rate calculations, USDA overstates those rates. Also, by assuming that nonrespondents and respondents to the survey are identical, USDA does not recognize the potential for bias in the survey estimates. Furthermore, by not knowing the level of adjustments made by USDA staff to the FCRS data, users of the data have no idea of how

much information is provided by farmers and how much is provided by other sources.

Lastly, USDA's definition of a farm—an establishment with $1,000 or more in yearly sales—results in the survey's including many small farms that contribute little to the farm economy. We believe the definition is outdated. USDA could utilize its resources more efficiently, in our opinion, if it would change its sampling strategy to eliminate from the FCRS small farms, such as those with less than $10,000 in gross sales, that have little impact on the overall farm sector. Or, at a minimum, USDA could alter its definition of a farm to consider the effects of inflation. This latter step would eliminate at least the very small farms from the yearly FCRS sample, and provide an opportunity for USDA to obtain expense and income data on small farms through less costly and less frequent methods.

Recommendations to the Secretary of Agriculture

So USDA can improve the overall quality and reliability of the FCRS and the estimates it generates, we recommend that the Secretary of Agriculture

- adopt a method of calculating response rates that excludes those individuals who do not qualify as farm operators,
- minimize potential bias in the estimates by determining if nonrespondents to the FCRS are significantly different from respondents,
- evaluate the level of data editing/imputation that occurs in the survey, and
- change the definition of a farm to eliminate from the FCRS those small farms that have little impact on the overall financial conditions of U.S. farms, or develop less costly methods for obtaining data on small farms less frequently, such as using a shortened mailed version of the FCRS or a telephone survey once every 5 years.

To better inform all users of the FCRS about the data's integrity, the Secretary should, after taking these steps, publish information on the methodology USDA used to calculate response rates, the level of data editing/imputation that exists, and the similarity between respondents and nonrespondents, together with information on any bias in the FCRS estimates.

Agency Comments and Our Evaluation

In commenting on a draft of this report, USDA stated that calculating response rates as we recommend may provide useful information to some interested parties. The agency further stated, however, that it would also

compute response rates based on all selected units which is consistent with the procedures used in its other surveys.

USDA also stated that it would be costly to develop a program to determine differences between nonrespondents and respondents. As an alternative, the agency said that it is developing methods such as shorter questionnaires, incentives for respondents, and increased publicity, to improve response rates. As indicated earlier in this chapter, high nonresponse rates could bias the estimates. USDA's alternative methods, some of which were ongoing during our review, have not yet improved response rates. Therefore, we maintain that additional steps are needed to determine if bias in the estimates exists. A generally accepted way to examine for bias would be to compare key characteristics of nonrespondents and respondents to ensure that the two groups are similar. We recognize that such a comparison could be costly. However, because USDA's estimates may be linked to policy decisions regarding the agency's price and income support programs, it is possible that the potential benefits derived from ensuring the validity of the estimates may outweigh the costs.

USDA also stated that it would publish more detail on the procedures employed in editing or imputing data, but the agency believes detailed statistics on editing and imputation would be confusing and misleading to many data users. On the basis of our discussions with NASS and ERS officials, we maintain that the extent of data editing/imputation in the FCRS could be significant, yet the extent is unknown. Therefore, we believe it is imperative that USDA evaluate the level of data editing/imputation that occurs and disseminate that information to data users.

USDA disagreed with the recommendation in our draft report to change the definition of a farm or alter the scope of the FCRS to eliminate small farms from the survey, stating that such farms are an important part of agriculture and must be covered in agricultural publications. Nevertheless, we believe that using the FCRS to obtain data on small farms is not an efficient use of resources. We therefore maintain that USDA should develop less costly methods for obtaining data on small farms less frequently, such as using a shortened mailed version of the FCRS or a telephone survey once every 5 years. We revised our recommendation to clarify our position on this issue. In this chapter, we also incorporated other specific comments made by USDA as we deemed appropriate and necessary.

Researchers Contend That Procedures on Access to FCRS Data and Communication With Data Users Need to Be Enhanced

Many land grant university researchers believe that the usefulness and effectiveness of the FCRS could be enhanced if USDA would clarify its procedures on providing access to unpublished FCRS data[1] and improve communication with users of the data outside the agency. The researchers who participated in our workshop, as primary non-USDA users of the FCRS data, identified these two issues as major concerns to them.

USDA's Procedures on Access to Unpublished FCRS Data Are Unclear to Some Users

As is the case with other federal agencies that maintain data on individuals, USDA must by law ensure the privacy of its voluntary respondents to the FCRS.[2] Non-USDA users of FCRS data recognize that mandate; however, some indicate that the agency's procedures for granting access to unpublished data are unclear when access is denied for reasons other than to ensure the respondents' privacy. While some users contend that they get unlimited access to unpublished FCRS data, others contend they are denied access. In our opinion, the fact that USDA has no written criteria specifying all circumstances for granting or denying access to the data explains why users are often unclear about USDA's decisions about access.

The FCRS is conducted under a general grant of authority, provided in 7 U.S.C. 2204(a), that gives the Secretary of Agriculture the authority to collect statistical information concerning agriculture. Several statutes restrict the disclosure of information obtained from the FCRS. First, 7 U.S.C. 2276 serves to protect the identity of the person providing the information by prohibiting anyone from using the information or disclosing it to the public unless it is in an aggregate form that does not reveal the person's identity. Second, 18 U.S.C. 1902 prohibits federal employees from disclosing information obtained from the FCRS that could be used to influence the market price of a crop. Third, 18 U.S.C. 1905 generally prohibits the unauthorized disclosure by federal employees of any confidential business information obtained in the course of their employment. Violations of these statutes may result in criminal penalties.

Any person, whether or not employed by USDA, who seeks access to unpublished FCRS data must first sign a USDA form (entitled "Certifications and Restrictions on Use of Unpublished Data") that includes the relevant

[1]In this report, unpublished FCRS data include summarized but unreleased data as well as records on individual respondents.

[2]The issues of maintaining the confidentiality of respondents and providing access to federal data are currently being addressed by a panel within the National Research Council. The panel is scheduled to report on this issue later this year.

text of these statutes. A person signing the form is certifying that he or she has read and will abide by the statutes' provisions. The signer is also agreeing not to publish summaries that could possibly reveal data from individual questionnaires, specifically when the data are based on questionnaires from fewer than three farms or when one farm accounts for 60 percent or more of a total. If USDA grants access to FCRS data when either of these situations exists, then the data must be aggregated in a manner that does not violate the confidentiality rules before the agency will allow publication.

In addition to applying written criteria to protect the identity of individual respondents, USDA has other written criteria telling potential users of FCRS data how to, among other things, submit proposals for unpublished data. However, when considering whether to permit access to unpublished FCRS data on specific commodities and whether to permit the publication of summaries, USDA applies unwritten criteria. For example, USDA may decide to deny access to data if some agency officials believe that the data are not "ready to be released." USDA may also deny access to data if particular items have not been "cleaned up" to the agency's satisfaction, or if some agency officials express concern about the way in which a requester intends to analyze the data.

Access to FCRS Data Differs Among Users

While land grant university researchers acknowledge that there is an irrevocable requirement to protect the identity of individual respondents, they also indicate that there is an important need to have access to unpublished FCRS data to aid agricultural research. However, some researchers contend that when issues besides confidentiality are involved, USDA's unwritten procedures on access to data vary. For example, the 11 land grant university researchers who attended our workshop indicated that their experiences in obtaining access to unpublished FCRS data had varied considerably. Four researchers indicated that, generally, they had no difficulty obtaining access to unpublished FCRS data. Conversely, four researchers indicated that they either were denied access to the data or had difficulty obtaining access. The remaining three researchers had not yet had enough experience with requesting access to render an opinion.

Land grant university researchers who want access to unpublished FCRS data are required to submit a proposal to ERS specifying the type of data they wish to access, the purpose and scope of their work, the methodology contemplated for analyzing the data, and the type of product that will result. NASS and ERS officials acknowledge that some requests for

unpublished FCRS data on specific commodities have been rejected because agency officials were concerned that the data were not ready to be released or that the methodologies to be used in the research projects possibly were unsound. In addition, four researchers told us that access to FCRS data appeared to be denied sometimes because ERS did not have the staff available to assist them. Even though such staffing shortages may be a legitimate problem, they have nothing to do with protecting the identity of individual respondents or safeguarding data until it is cleaned up.

One possible reason for the researchers' confusion about USDA's decisions to grant or deny access—and perhaps for the researchers' varied experiences—is that ERS has no written criteria specifying which unpublished FCRS data will be available and which will not. Furthermore, ERS has no written criteria for determining which research projects are acceptable and which are not, or how draft products from non-USDA researchers will be reviewed by USDA officials. Without such criteria, non-USDA users find it difficult to understand what ERS considers acceptable. One researcher at our workshop went so far as to say that for similar proposals, ERS officials were inconsistent in their decisions on how to disclose the data.

Although ERS maintains a list of those individuals who have been granted access to unpublished FCRS data, the agency does not maintain a similar list of those individuals who were denied access. Thus, we could not determine the full extent of and reasons for ERS' denying access to unpublished FCRS data.

Some Non-USDA Users Contend That Terms of Access Are Burdensome

When access to unpublished FCRS data is granted, the user is required to work on-site at the ERS office in Washington, D.C., and under the direct supervision of an ERS employee. No electronic access to any segment of the data base is permitted outside ERS, and data printouts cannot be taken out of the ERS office. We found this procedure to be similar to that of the Department of Commerce's Bureau of the Census.

According to many of the land grant university researchers who participated in our workshop, these restrictions are burdensome. These researchers believe that the travel costs, distance, and time involved in obtaining unpublished data from the ERS staff discourage many researchers from requesting access to the data. As a possible solution to this problem, some researchers propose that ERS make the FCRS data base

available at selected state locations, where access would be less costly and less difficult.

Two researchers at our workshop also pointed out that USDA's terms for granting access to the FCRS data can hinder the publication of articles that have used unpublished FCRS data as support for economic analyses. When researchers submit articles to professional journals for publication, the articles must undergo peer review to ensure their accuracy. Some journals require descriptions of quantitative procedures and access to the data used in the analyses. Journal officials maintain that scientific verification or rebuttal of research results is necessary but difficult or impossible to do when access to the supporting data is not possible.

USDA maintains that peer reviewers of articles submitted to professional journals can have access to unpublished FCRS data; however, they must comply with requirements and procedures regarding confidentiality and access, just as other data users do. That is, peer reviewers must submit a request for access to the data, and, if the request is approved, must travel to ERS in Washington, D.C., to review the data. In addition, the reviewers must sign USDA's form regarding confidentiality and be subject to penalties for violations. While land grant university researchers agree that unpublished FCRS data should be protected, some contend that USDA's access procedures create a burden for journal publishers. One researcher at our workshop indicated that the Western Journal of Agricultural Economics will not publish articles that use FCRS data unless the data are readily available, while another researcher stated that the American Agricultural Economics Association is considering a similar policy.

Some Researchers Contend That Communication Between Them and USDA Needs to Be Improved

While USDA considers communication with FCRS data users outside the agency to be adequate, the land grant university researchers we spoke with indicated that their communication with USDA is limited, a situation they say stifles their research efforts. These researchers contend that USDA could improve its communication with them by conducting forums specifically designed for discussing the FCRS. Such a process, they say, may facilitate a resolution to the problems concerning access and bring USDA and non-USDA data users closer together.

In 1985, a report to the Secretary of Agriculture by USDA's Economic and Statistics Review Panel identified a communication gap between USDA and non-USDA users of the agency's data. This panel recommended that USDA form an advisory committee to establish lines of communication with

users of the data. Similarly, in 1991, a strategic planning report issued by NASS identified maximizing service to users of data as one of the agency's three main strategies to improve relations with others. So, even though USDA has recognized for several years that communication has been a problem, non-USDA users of FCRS data claim that the problem has still not been properly addressed.

As part of its efforts to improve communication, NASS has, since 1978, met with select users of the agency's data. Invitations to these meetings, which cover different topics and are held at different locations, are sent mainly to individuals nominated by the Assistant Secretary for Economics and the agencies involved in the meetings. Outside participants are also invited to attend, yet the land grant university researchers at our workshop indicated that they generally were not familiar with these NASS meetings.

USDA also uses its National Agricultural Cost of Production Standards Review Board, which is a statutory advisory committee consisting of members appointed by the Secretary of Agriculture, as a forum for communicating with select users of the agency's data. One of the 11 members is a USDA employee, while the other 10 members are selected by the Secretary on the basis of their knowledge of farm operations or the costs of production. The Board advises the Secretary of the adequacy and accuracy of the COP estimates.

While recognizing that some communication links exist, the land grant university researchers at our workshop collectively expressed concern that more needs to be done. Two researchers suggested that USDA periodically hold workshops, similar to the one we conducted, to specifically obtain non-USDA researchers' opinions on the quality and reliability of the FCRS. In light of USDA's recognition since 1985 that a communication problem exists, we believe USDA needs to provide more opportunity to communicate with non-USDA users of FCRS data. By improving its lines of communication, USDA may learn more about the strengths and weaknesses of the survey.

Conclusions

Land grant university researchers who use FCRS data acknowledge and understand USDA's written criteria for ensuring the privacy of respondents to the FCRS. Nevertheless, some researchers indicate that they are unclear about other criteria USDA uses in deciding whether to grant or deny access to unpublished FCRS data. The fact that USDA has no written criteria—beyond those dealing with confidentiality—to support its

decisions on access may help to explain the confusion that currently exists among non-USDA users of the FCRS data. In addition, the limitations USDA imposes once it has granted access to the data—most importantly, requiring that work be done at ERS headquarters in Washington, D.C.—reportedly are burdensome for some users. Lastly, some land grant university researchers believe that there is a communication gap between USDA and non-USDA users of the FCRS data. These researchers believe that a periodic forum is needed specifically to share knowledge and comments about the survey.

Recommendations to the Secretary of Agriculture

To reduce the concerns that currently exist regarding the granting of and limitations on access to unpublished FCRS data, we recommend that the Secretary of Agriculture (1) establish written criteria that clearly state how decisions for granting or denying access to data on specific commodities are made and (2) work with non-USDA researchers to lessen the burden of using the data. In meeting the latter recommendation, the Secretary may wish to conduct a pilot program that provides access to unpublished FCRS data at a location outside Washington, D.C., while still maintaining the same rules regarding confidentiality that apply to accessing FCRS data at ERS headquarters.

To close the communication gap that currently exists between USDA and non-USDA users of FCRS data, we recommend that the Secretary establish with data users additional lines of communication devoted specifically to discussing concerns about the FCRS.

Agency Comments and Our Evaluation

In commenting on a draft of this report, USDA disagreed with our statement that the agency has no written criteria to use when considering whether to grant or deny access to unpublished FCRS data. Consequently, USDA referred us to several of its written policy statements that govern access to and the use of unpublished data. These policy statements were not made available to us during our review. USDA's comments indicate, though, that the agency will amend its policy statements on the use of specific data. Nevertheless, the fact remains that USDA's written criteria do not state how decisions are made for granting or denying access to unpublished FCRS data on specific commodities.

USDA also disagreed with our recommendation to establish with data users additional lines of communication devoted specifically to discussing concerns about the FCRS. USDA maintains that such efforts would not be

cost-effective in addition to its ongoing communication program. While we recognize in this chapter that USDA has some communication links with data users, the researchers we spoke with—who are major users of FCRS data—maintain that additional communication specifically about the FCRS is needed. These opposing statements indicate to us that a communication problem still exists between USDA and non-USDA users of FCRS data.

Comments From the U.S. Department of Agriculture

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

United States Department of Agriculture
National Agricultural Statistics Service
Washington, D.C. 20250-2000

June 15, 1992

Mr. John W. Harman
Director, Food and Agriculture Issues
Resources, Community, and Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Harman:

This is a response to the draft on Data Collection: Opportunities to Improve USDA's Farm Costs and Returns Survey. It incorporates comments from the National Agricultural Statistics Service (NASS) and the Economic Research Service (ERS). For clarity, the comments have been organized under the six recommendations to the Secretary of Agriculture shown on page 7 of the draft. Short summary comments are included first, followed by responses to specific statements in the report.

See comment 1.

1. Adopt new method of calculating response rates

Calculating the GAO suggested response rate based on the number of qualified operations responding may provide useful information to some interested parties. However, NASS will also compute the response rate based on all selected units which is consistent with the procedure used for other NASS survey programs and is useful for other purposes.

See comment 2.

2. Determine if nonrespondents differ from respondents

NASS conducts research to investigate the effect of nonresponse as well as other nonsampling errors. However, it is difficult to determine if nonrespondents are different than respondents since current data on nonrespondents are difficult to obtain. Imputation for respondents is done within each income class strata by State. Nonrespondents are not assumed to be like the average of all respondents, but rather like similar observations based upon available information. Developing a program to determine differences between nonrespondents and respondents for all NASS surveys would be costly. Therefore, alternatives such as shorter questionnaires, respondent incentives, increased publicity, and other means are being developed to improve response rates.

See comment 3.

3. Evaluate level of data editing and imputation

Prior to the GAO review, a NASS research study was completed in two States and documents the significance of FCRS editing and imputation; it also affirms that an audit trail exists for post survey scrutiny. NASS agrees that better procedures for tracking editing and imputation should be implemented for all surveys. This should be helpful internally to insure consistency in editing and imputation procedures. We

believe detailed statistics on editing or imputation would be confusing and misleading to many data users. However, NASS will publish more detail of the procedures employed to edit or impute for missing data. ERS currently documents its imputation procedures which uses survey means from farms with similar operating characteristics.

4. Change the farm definition

See comment 4.

The current farm definition is not the prerogative of ERS or NASS to change unilaterally. USDA works closely with the Agriculture Division of the Bureau of Census on the farm definition. Even if the definition changed, small operations would still need to be contacted to see if they were at or above the cutoff that year. Small farms are an important part of the agriculture sector and must be included in net farm income published by the Department of Commerce, Bureau of Economic Analysis, in estimating the GNP. Also, legislation requires USDA cost of production commodity budgets to include small farms. The percentage of FCRS costs devoted to small farms is much less than their percentage of total farms. Data on small operations are also important to many rural issues other than simply production statistics.

5. Establish written access criteria

See comment 5.

Written criteria for access to FCRS unpublished data, including individual respondent reports, exist. To reduce any misunderstanding that may exist among potential users of FCRS data outside USDA, the Department will amend its policy statements related to use of FCRS data to refer specifically to whole-farm and crop and livestock specific data. Specific information related to access will be provided for both whole-farm and crop and livestock costs and returns data.

6. Establish lines of communications

See comment 6.

ERS and NASS jointly hold data user meetings in several locations each year. ERS and NASS staffs also participate in a variety of industry and professional workshops and conferences including the American Agricultural Economics Association and regional agricultural economic association meetings. This affords many researchers and other data users the opportunity to learn more about the type, quality, and availability of data and statistical reports released by the USDA. The Department does not believe that a special forum to address solely the design, use, and access to the FCRS is cost effective in addition to its ongoing communication program.

Additional detailed responses on the draft report follow:

Now on p. 14.

The draft report states (page 19, para 1) "response rates for the FCRS as calculated by NASS are overstated." NASS response rates for all survey programs, not just FCRS, measure the number of completed sampled units. To measure the number of completed interviews from qualified farmers as suggested by GAO, the total sample size must be adjusted for screen out. Both procedures are correct and are simply different ways to represent response rates. When NASS publishes response rates, the method used to calculate the rate is also provided. The FCRS response rate with the method of computation is documented in a report entitled, "1990 Farm Costs and Returns Survey,

Survey Administration Analysis." The authors of the report suggested that a response rate based on eligible respondents completing questionnaires be considered.

Now on p. 14.
See comment 7.

In response to the draft report statement (page 19, para 1) about the possible effect of the response rate calculation on quality or reliability, the answer is simply no effect at all. All adjustments of expansion factors are done properly within size group strata within States, and no bias is created due to the response rate calculation.

Now on p. 15.
See comment 8.

The draft report (page 19, para 2) incorrectly identifies "farmers in the sample who did not grow the particular crop being surveyed that year" as nonfarm screen outs. The survey target population is the USDA farm definition and includes all establishments from which $1,000 or more of agricultural products are sold or could be sold during the year. Certain operations may not qualify for the farm enterprise cost of production questionnaire section, but are legitimate farms. For example, respondents growing only sweet corn selected for the corn questionnaire version would only screen out of the corn for grain farm enterprise section. These questionnaires are useable reports for farm financial data. Only the cost of production data response rates and corresponding expansion factors would reflect the screen out for the commodity corn for grain.

Now on p. 17.
See comment 9.

In response to lack of NASS research activities concerning bias and nonresponse (page 22, para 3), the Survey Research Branch has been investigating the effect of bias in the FCRS data. A new procedure being evaluated adjusts for refusals and inaccessibles using data from only positive respondents by farm size and type instead of the operational method of using positive respondents and nonfarm screen outs. This alternative adjustment assumes that nonrespondents are farms that meet the USDA definition and have positive data to report. Recommendations will be forthcoming based on the research underway. Adjustment for nonresponse must be approached with extreme care, however, because of the correlations and interaction among every cell and section of the questionnaire. An incorrect adjustment will result in introducing serious error. Also, alternative methods of imputation may distort data relationships when modeling economic data.

Now on p. 17.
See comment 10.

The draft report states (page 23, para 1) that USDA has not studied the issue of data editing and imputation on FCRS, "if USDA were to study this issue . . . ." A NASS research report, published August 1991, entitled, "Analysis of Item Nonresponse, Imputation and Editing in the 1989 Farm Costs and Returns Survey for Iowa and North Carolina," was provided to the auditors. The report is also available for distribution outside of USDA. The report defined item nonresponse, documented the extent it occurred, and measured the impact of editing and item imputation on the FCRS data. The report states about one-half of the edits moved data from one cell to another on the questionnaire and at least one-half of the edit changes had no effect on selected major survey estimates evaluated. The operational data collection procedures annually review and address specific questions contributing most to item editing and imputation through questionnaire design and content changes. Also, the auditors' reference to larger before versus after edit level differences in North Carolina compared to Iowa result from valid survey procedures which collect selected financial data from livestock contractors directly. To the unfamiliar reviewer, the data would appear to be questionable imputation from "sources other than the farmer."

The survey instruments have been pretested and refined to minimize editing and imputation over a series of years and literally thousands of interviews. The survey instruments have been scrutinized and critiqued by major producer organizations,

economists, industry analysts and, most importantly, the survey respondent. Sensitive questions have been formatted to permit recording a code to indicate a data range. Work tables are provided to the respondent to address certain questions. Contrary to the auditors' opinions, the survey instrument contains questions for which the respondent is the best information source. Data imputation is a last resort option for respondents choosing not to answer a survey question. A shortened questionnaire version will also be used in the 1992 FCRS which was designed to parallel closely data contained in farm records and is similar to data reported for tax purposes. Other data collection alternatives are being evaluated to reduce nonresponse and respondent burden.

Now on p. 12.

The draft report lists three objectives of the study (page 15, para 2). It also states that ". . . we did not attempt to determine the accuracy or usefulness of the survey in measuring the financial health of U.S. farms." The report refers to two communications with the Chairman, Senate Committee on Agriculture, Nutrition, and Forestry, dated February 15, 1991, and May 9, 1991.

See comment 11.

It is clear from the report that GAO went through a preliminary process of reinterpreting the original request from the Senate. It would be useful to the reader to know the details of the initial requests from the Senate, along with the justifications for reinterpreting the assignment. For example, why did GAO choose not to investigate the adequacy and usefulness of the survey, but rather to investigate the scope and design of the survey? In the process, it would be helpful to the reader to know the definitions of these terms as GAO views them.

Now on p. 10.
See comment 12.

The draft report states (page 13, para 2) that each year ". . . about 24,000 farmers are drawn . . . to make up the FCRS sample." Due to changes in survey costs and limited survey funding the sample size for the 1991 survey was reduced by approximately 2,000 contacts to a level of 22,129. This reduction in sample size was accommodated by stretching out the rotation cycle for collecting data on costs of producing agricultural commodities. The list of commodities either surveyed or planned for survey has changed from that shown in the report in the following ways: (1) barley, a program commodity, was not surveyed for the 1991 calendar year, but will instead be surveyed for 1992, (2) oat crop production will not be surveyed until 1995, (3) the survey of wheat crop production will be moved from calendar year 1993 to 1994, and (4) the survey of farm operator households referred to in the report as questionnaires on a farmer's resources will be converted from an annual to a biennial basis.

Now on p. 21.
See comment 13.

The draft report states (page 28, para 1) that the primary purpose of the FCRS is "measuring expenditures and incomes associated with the production of major agricultural commodities." This view about the primary purpose of the FCRS is incomplete and is reflected in some of the recommendations made in the report. The primary purpose is not limited to major agricultural commodities, but includes measuring the financial position of farm businesses. It is not meaningful to determine the financial position of individual agricultural commodities because the overwhelming majority of farms in the United States and worldwide are multiple output farms. Further, the primary purpose is not limited to farm businesses. Included in the primary purpose is measuring the financial status of people associated with farming. Almost one-half of all farm operators have major occupations (where they spend most of their time) as something other than farming and 90 percent of farm operator households receive income from off-farm sources. Even those farmers whose major occupation is farming receive more income from off-farm sources than farm sources. As evidence of the importance of the FCRS in meeting the USDA's requirement to report on the status of farm people, the annual mandated report to Congress on "Family Farms" is now based almost exclusively on the FCRS. The failure to

recognize this basic and important purpose, contributed to GAO's recommendation about changing the sampling strategy for "small" farms.

See comment 14.

USDA does not agree that the farm household questionnaire collects household characteristics data that are unrelated to agricultural production. Design of the operator resources questionnaire recognizes that farmers, their households, and their farm businesses are closely linked and that decisions are made by operators which jointly consider the economic well-being of both the farm and the household. Data collected through the farm operator resources questionnaire that are related to agricultural production include: (1) allocation of labor between farm and nonfarm jobs by operators and their spouses, (2) farm safety and health related data for operator households and hired workers, (3) acquisition and financing of farm assets, and (4) farmers' views on prospects for expanding, decreasing, and leaving their farm operations unchanged. Each set of data relates to decisions on the use of limited farm family resources and to a better understanding of the organization and structure of production agriculture.

Now on p. 18.
See comment 15.

The draft report states (page 25, para 1) that "After data editing/imputation has taken place at the state NASS offices--which includes editing by computer routines that identify values exceeding a given boundary, known as outliers--the data base is transmitted to the headquarters office in Washington, D.C., for further checks of quality and completeness." Computer edits are executed by the headquarters office. The NASS survey statisticians review machine edit output sent to their State office from data processed on a centralized main frame computer. Data are first reviewed and verified at the field location to ensure data quality and consistency. A later data review involves headquarters and field staff to document all atypical reports and validate the 100 largest expanded reports. An audit trail exists for each questionnaire processed.

Now on p. 19.

The draft report states (page 25, para 2) that "As indicated earlier, values for over 100 individual questions on the FCRS questionnaire may be imputed by ERS using sources other than farmers if answers are missing . . . . NASS' recommendations highlighted the need for a new editing strategy to include procedures for providing values if answers are missing, as well as audit trails that identify the sources of the data imputed." The reference concerns processing procedures before data are transmitted to ERS. On the 1990 FCRS, ERS provided detailed documentation on those items for which it imputed data. This documentation included the computer programs used to develop the imputations. To impute data for most of the refused or unknown items, ERS first calculated expanded means for farms that did report these items and had similar operating characteristics to farms that did not report the items. These expanded means were used directly in most cases as the imputed data.

Now on p. 19.

The draft report states (page 25, para 3) that "We did not attempt to duplicate the analyses discussed above. However, on the basis of data ERS provided to us, we found that for some questions on the FCRS questionnaires--such as those pertaining to the depreciation of equipment, the share of government payments received by landlords, and farm assets--the estimates derived before and after ERS' data imputation differed by as much as 27 percent.

See comment 16.

In light of this finding, we question ERS' conclusion that data editing/imputation is not significant." ERS imputed data for 77 items which were common to all 1990 FCRS questionnaire versions and pertained to the farm business. To document the effect of the imputations, ERS calculated the percent increase in the expanded U.S. total for each item after the inclusion of imputed data. Of the 77 items, only 5 differed by more than 10 percent after the inclusion of imputed data, and only 1 of these by more than 15 percent. Of the remaining 72 items, 8 differed in the range of 6 to 10 percent, 27 differed in the

range of 1 to 5 percent, and 37 differed by less than 1 percent, after the inclusion of imputed data. Four of the top 5 items (other farm assets, ending equipment inventory value, depreciation, and debt owed to life insurance companies) are used to construct basic farm financial statements. At the U.S. level the effect of imputed data on aggregate measures such as net income and net worth is small.

See comment 17.

The draft report states (page 26, para 1), that "More importantly, regardless of whether the effect of data editing/imputation on overall estimates is large or small, we question the wisdom of including in the survey as many as 100 questions that are known to be difficult to answer or unlikely to be answered." The 1990 FCRS contains usable information for a total of 12,634 respondents including those who refused to report or were unable to provide data for one or more items. For 70 of 77 items for which ERS imputed data, the number of respondents who did not know (or would not provide) data were 251 or less (less than 2 percent of the total number of respondents). Of the remaining 10, in only 2 cases did the percentage of respondents who refused or did not know data exceed 3 percent of total respondents. USDA recognizes the traditional view that some questions may be viewed as sensitive, or too personal for response, especially in a personally enumerated survey. Because questions are sensitive or are difficult to ask does not mean that they can be dropped. The "100 questions" to which the draft report refers includes all questions that ask for farm price, cash sale, government program loan or payment, off-farm income, asset or debt information. To eliminate these questions from the survey would mean that neither complete or accurate financial statements could be constructed for farm businesses, nor could statements of income from both farm and non-farm sources be developed for farm operator households. Absent these data USDA would not be able to prepare annual assessments of the financial performance of farm businesses and address the economic well-being of farm households.

Now on p. 17.

The draft report states (page 23, para 1) that ". . . because USDA does not require its staff to document the level of farmers' nonresponse to particular questions or the extent of adjustments made . . . data users cannot know the true source of the data or the reliability of the FCRS estimates." On the 1990 FCRS, ERS provided detailed documentation on those items for which it imputed data. This documentation included the total number of respondents who refused or did not know an item as well as the percent increase in the expanded total for the item after the inclusion of imputed data at the U.S. level. ERS also provided the computer (SAS) program code used to develop the imputations. In addition ERS provided data items without imputed data so that researchers could determine the effect of including imputed data on groupings of data at other than the U.S. level. ERS distributes documentation on data imputation including computer programs to researchers who are involved in analyzing FCRS data. ERS also documents the effect of sampling error on financial performance indicators, but does not attempt to measure variability due to nonsampling errors such as imputing for missing data.

Now on p. 18.

The report states (page 24, para 3), that "Supervisory enumerators we spoke with at the three state NASS offices identified a number of questions that are generally not answered by farm operators. . . . These questions are the ones most likely to require data imputation. . . . On the income section of the questionnaires, the questions ask about such things as government payments, income from sources other than the farm, and the level of debt." At the U.S. level, the number of respondents who refused or were unable to answer the questions about off-farm income varied from a low of 261 (cash wages) to a high of 354 (interest and dividends) out of a total of 12,634 respondents. For debt, the highest number of refusal/didn't know responses was for loans from commercial banks (355 out of 12,634 total responses).

Now on p. 21.
See comment 18.

The report states (page 28, para 1) ". . . for USDA to include small farms in the survey is not, in our opinion, an efficient use of resources" and goes on to state (page 28, para 3) that "One researcher emphasized that it is foolish to survey farmers with sales of under $10,000." Aside from the fact that USDA does not have unilateral control over the accepted definition of what constitutes a farm operation, this statement does not recognize USDA's responsibility to produce sector-wide estimates of net income earned by farm businesses for inclusion in estimates of Gross Domestic Product and Personal Income published annually by the Department of Commerce. To be complete and reflective of all goods and services produced by the farm sector, all types and sizes of farm operations must be included in USDA's estimate of net farm income. Moreover, the statement that it is foolish to survey farmers with sales of under $10,000 reflects a specific research agenda. Other researchers, those with an interest in rural economies and the economic circumstances of rural people, most likely would argue that more data need to be collected for small farms. Regardless of the research agenda that various academics may hold, small farms and their households are important to USDA estimates of farm financial statistics. The draft report itself notes that farms with gross sales of less than $10,000 account for "6 percent of total expenditures." Farms with less than $10,000 in sales account for an even larger share of other estimates such as off-farm income or rents associated with owner-occupied dwellings.

Now on p. 26.

See comment 19.

The report states (page 34, para 1) that ". . . ERS has no written criteria specifying which unpublished FCRS data will be available and which will not. Furthermore, ERS has no written criteria for determining which research projects are acceptable and which are not, or how draft products from non-USDA researchers will be reviewed by USDA officials." From the draft report it is not clear what GAO means by unpublished data. Does the report use the term unpublished data to refer to summarized but here-to-fore unreleased data? Or, does the report refer to individual farm records that have not been summarized? USDA interprets the draft report to imply individual respondent records. This issue needs to be clarified so that the reader understands the type of data access that is being discussed in the report.

See comment 20.

ERS and NASS have written policy statements that govern access to and use of unpublished data, including FCRS individual respondent records. These statements include: (1) Policy and Standards Memorandum No. 6-90, "Access to Lists and Individual Reports (issued by NASS on March 14, 1988, and reissued March 28, 1990), (2) ERS Policy on Dissemination of Statistical Information (issued by ERS on September 19, 1989), (3) Use of Farm Costs and Returns Survey Data (issued jointly by NASS and ERS on July 14, 1986), and (4) Outline for Proposals to use Farm Costs and Returns Survey Data (prepared by ERS to assist data requesters in submitting data access proposals). These statements specify responsibilities of ERS, NASS, and analysts, both within and outside ERS, with regard to data access. The policy statements clearly indicate that access to the FCRS individual respondent reports is restricted to "ERS staff and university and other public interest analysts for research purposes that are designed to serve the public and contribute significantly to understanding of the farm sector." The policy statements clearly tell potential users of FCRS data that they are to submit proposals that specify the types of information required, how the use of FCRS data relates to their overall research plan, method of analysis, and level of interpretation planned. The project outline collects information needed to evaluate the feasibility and resource requirements of project proposals. A standardized applications procedure insures that requests can be evaluated in a consistent manner. The policy statements also indicate that results of any approved project will be reviewed prior to release for possible disclosure of information about individual farms.

Requests for access to whole-farm income, finance, and farm characteristic data have been submitted to the Farm Sector Financial Analysis Branch, ERS. The branch maintains a file

of written requests that have been received and their disposition. Denial has occurred only for insufficient sample size. Access has normally been granted to the whole-farm data approximately 6 months after receipt of raw, unsummarized respondent data on a data tape from NASS.

The FCRS is an integrated survey which supplies both whole-farm finance and crop and livestock production practices and cost data simultaneously. While access to whole-farm data is granted solely by the Farm Sector Financial Analysis Branch, access to crop and livestock production practices data is granted by the branch holding responsibility for preparation of cost and returns estimates: The Farm Sector Financial Analysis Branch for major field crops, Specialty Agriculture for sugar and tobacco, and the Livestock, Dairy, and Poultry Branch for dairy and livestock data. Access has been made available after the responsible branch has reviewed the crop and livestock data for missing, erroneous, or inconsistent data, satisfied itself that the data set is ready for use in producing a publishable estimate, and built a cost and returns model for the commodity. This process has not occurred in the same time frame for all commodities.

See comment 21.

Some misunderstanding among potential outside users of FCRS may possibly have arisen because data related to whole-farm analyses are available for use much earlier than data related to specific crop and livestock commodities. The joint NASS and ERS policy statement related to Use of Farm Costs and Returns Survey Data refers only to FCRS data, not to whole-farm or crop or livestock specific data. This statement will be amended to provide more specific access related information for whole-farm and commodity-level data.

Now on p. 27.
See comment 22.

The report states (page 36, para 1) that ". . . land grant university researchers . . . indicated that their communication with USDA is limited, a situation that stifles their research efforts." USDA welcomes input with regard to the type, quality, and availability of data and statistical reports from all data users, including land grant university researchers. To provide a forum for data user input, "listening meetings" have been held nearly every year since 1978. The 1990 meetings focused on the NASS price program and ERS indicators of farm income and costs of production, including specific discussion of the FCRS. Invitations to attend the 1990 meetings, held in Kansas City, Indianapolis, and Washington, D. C., were sent to more than 480 people, including over 100 agricultural economists at land grant universities. Approximately 100 people attended the listening sessions, including more than 25 university representatives. Those who could not attend were invited to submit written comments. In addition to these annual meetings, ERS has held other meetings to obtain input about its estimates program. Specifically, workshops have been held to review wheat and rice cost of production estimates, whole-farm financial statements, procedures used to develop estimates of farm vulnerability, and procedures used in farm income accounting. ERS has also participated in several conferences and workshops sponsored by the American Agricultural Economics Association and regional research committees where FCRS data have been discussed.

Sincerely,

Donald M. Bay

DONALD M. BAY
Acting Administrator

The following are GAO's comments on the U.S. Department of Agriculture's June 15, 1992, letter.

GAO's Comments

1.We have incorporated at the end of chapter 2 of this report the U.S. Department of Agriculture's (USDA) statement on the usefulness of calculating response rates as we recommend.

2.We recognize the difficulty and the cost involved in any effort to determine if the characteristics of nonrespondents to the Farm Costs and Returns Survey (FCRS) differ from those of respondents. We also acknowledge USDA's suggested alternatives to improve response rates. However, as we state at the end of chapter 2, we maintain that additional steps are needed to determine if bias in the estimates exists. Because USDA's estimates may be linked to policy decisions regarding the agency's price and income support programs, it is possible that the potential benefits derived from such action may outweigh the costs.

3.We have incorporated at the end of chapter 2 the intention the National Agricultural Statistics Service (NASS) has to publish more detail on its data editing/imputation procedures. We disagree with USDA's statement that detailed statistics on editing or imputation would be confusing and misleading to many data users. We believe that such statistics would help data users better understand the true level of farmers' input into the estimates derived from the FCRS.

4.USDA appears to take the position that because small farms are an important part of agriculture, those farms must be included in the FCRS sample. We maintain that using the FCRS to obtain data on small farms is not an efficient use of resources. Therefore, USDA should develop less costly methods for obtaining that data less frequently, such as using a shortened mailed version of the FCRS or a telephone survey once every 5 years. In chapter 2, we have revised the text, conclusions, and recommendation to clarify this point.

5.The written criteria on access to unpublished FCRS data, as referred to in USDA's comments, do not state how the agency makes decisions to grant or deny access to data on specific commodities. We have incorporated at the end of chapter 3 USDA's plans to amend its policy statements on the use of specific data. However, that action does not address the fact that USDA's written criteria do not state how decisions on granting or denying access to data are made.

6.Land grant university researchers we spoke with believe that better communication with USDA regarding the FCRS is needed. USDA, on the other hand, does not believe that such efforts would be cost-effective in addition to the agency's ongoing communication program. As we state at the end of chapter 3, these opposing statements indicate to us that there is a communication problem between USDA and non-USDA users of FCRS data.

7.We have included in the executive summary and chapter 2 USDA's belief that the method the agency uses to calculate response rates does not affect the quality and reliability of FCRS data.

8.We have revised the executive summary and chapter 2 to show that screen outs, as defined by USDA, include individuals in the FCRS sample who did not grow, sell, or store any agricultural products or receive any government payments that year.

9.We now acknowledge in chapter 2 that NASS' Survey Research Branch is currently investigating the effect of bias in the FCRS data.

10.The specific statement referred to in USDA's comments reveals the fact that the agency does not require its field office staff to document the level of farmers' nonresponse to particular questions or the extent of adjustments made. We recognized in our draft report that USDA has made some limited efforts to study the level of data editing/imputation and its effect on the FCRS' overall estimates. However, those efforts do not relate to the particular statement cited.

11.In response to USDA's concern that we reinterpreted the original request, we have added a statement in the "Objectives, Scope, and Methodology" section of chapter 1 indicating that we agreed with the Chairman's office not to attempt to determine the accuracy or usefulness of the FCRS in measuring the financial health of U.S. farms because such an effort would be costly and time-consuming and would not be the best approach for us to take at this time. Furthermore, in defining our review of the scope and design of the FCRS, we examined those elements that we believed could affect the quality and reliability of the data generated.

12.We have revised the executive summary and chapter 1 to indicate that the sample of 24,000 farmers was used for the 1990 survey. That survey was the most recent one completed at the time of our review; other statistics used throughout the report are based on that survey.

13.We have revised the appropriate section of chapter 2 to indicate that the mandated objective of measuring expenditures and incomes associated with the production of major agricultural commodities could be met even if small farms were eliminated from the FCRS. We have added the point that USDA could obtain data on small farms by some other method if the agency believes such data are needed.

14.We have revised chapter 1 to indicate that the questionnaire on a farmer's resources also collects detailed information on characteristics of the household that affect decisions made by the farmer, such as the amount of income all household members receive from sources other than the farm.

15.We have revised chapter 2 to more accurately reflect the data checks that NASS headquarters and field office staff perform of the quality and completeness of data.

16.We have amended chapter 2 to provide additional details on the estimates derived before and after ERS' data imputation. In light of differences in the estimates reported by ERS and NASS, however, we continue to question ERS' conclusion that data editing/imputation does not significantly affect the survey estimates.

17.We have deleted this sentence from the report, as the statement referred to in comment 16 above expresses our continued concern about the significance of data editing/imputation.

18.We have deleted from chapter 2 the researcher's statement cited, as it reflected the view of one individual only. In its place, we have added a statement made by researchers and one of the three enumerators we interviewed indicating that using the FCRS to survey small farms may be burdensome and unproductive because the farmers in this category answer very few of the FCRS questions. In addition, we maintain that using the FCRS to collect data on small farms is not an efficient use of resources.

19.We have added a footnote in chapter 3 to clarify that in this report, unpublished FCRS data includes summarized but unreleased data as well as records of individual respondents.

20.We have amended chapter 3 to show that USDA has other written criteria telling potential users of FCRS data how to, among other things, submit proposals for unpublished data. However, we note that these criteria do

not cover decisions for denying or granting access to unpublished FCRS data on specific commodities.

21. We have included at the end of chapter 3 that USDA plans to amend its policy statements regarding access to unpublished FCRS data on specific commodities.

22. We indicate in chapter 3 of this report that USDA believes communication with data users exclusively regarding the FCRS is not cost-effective. However, the researchers we spoke with contend that such communication is needed. These conflicting statements indicate to us that a communication problem exists between USDA and non-USDA users of FCRS data.

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