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A Typology for U.S. Farms from National Survey Data

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Classification systems for U.S. farms are not new. National data collections and the literature in agricultural economics and rural sociology have included efforts to categorize farms for over a century. Whether a classification system is used as a system for national data collections, such as the Census of Agriculture, or a proposal for a new system that arises from research or changes in the policy agenda, the primary intent has been to describe characteristics of farming establishments. Only a limited amount of attention has been given to the people who operate farms. Households typically have not been included in classifications developed to represent sector-wide structure and economic activities.

Changes in classification systems have arisen out of the need to better reflect adjustments that have occurred in how the farm sector is organized and in how businesses operate to produce a wide range of goods and services. The principle of reflecting change in farms, the farm sector and, in especially our case, the role and importance of the household underlies work that the Economic Research Service (ERS) has undertaken to develop a typology of farms from its national survey of farms and farm-operator households.

Classification of Farms: A Perspective from the U.S. Census of Agriculture

The Census has classified farms using physical farm and operator demographic attributes for over a hundred years (United States Census Office). Farms were grouped by area, by value of product, by tenure, by race, by geographic area, and by the commodity group that supplied the principal source of sales to the farm. All these characteristics represented a single dimension of the farm or a single attribute of the farm operator. For these major groups, data were tabulated to reveal descriptive structural information about the number and size distribution of farms, area operated, geographic distribution, and property values for land, buildings, machinery, implements, and livestock and other data.

The most recent Agricultural Census, conducted in 1997, classified farms based on physical size of area operated, the market value of agricultural products sold, concentration of products sold, and type of business organization such as proprietorship, partnership, or corporation (U.S. Dept. of Agr., 1997). The Census also classified farms based on major crop or livestock production industry. While not as old or well established as Census classifications such as acres operated or value of product sold, industry classifications based on a production-based output system date back to the 1930's. The basis for type of farming classifications has been the Standard Industrial Code Classification, which was updated to the North American Industry

Classification System in 1997 (Executive Office of the President). The core principle underlying classification for purposes of the NAICS is to group establishments based on the activities in which they are primarily engaged. In practice, farms are classified to specific industry groups when a crop or livestock product or family of products accounts for one-half or more of agricultural production.

The five basic farm business classifications in the 1997 Census were joined by two categories developed to reveal some limited information about operators of farms. These included a classification of operators by tenure, and a classification by age and principal occupation. Examination of the operator's occupation and work status is limited to the broad choices of farming or other occupations. For either of these primary groups, operators could still work both on and off-farm. This leaves open to debate how actively operators were engaged either in their farm businesses or in other pursuits. Likewise, no information was provided for other members of the operator's household or for other operators or managers engaged in the farm. Including the industry or farm type classification, all major classifications developed for the 1997 Census reflected a production or output focus similar to the classifications used in the Census for many decades. In addition, the one classification developed for operators, age distribution by occupational status, continued to reflect the traditional one-farm single operator perspective that has also been embedded in national data collections throughout the past century.

From 1945 through 1969, the Census of Agriculture produced an economic classification of farms that drew on information for the farm, the farm operator, and to a limited extent the farm household (U.S. Dept. Comm, 1950; 1969). The classification criteria were developed jointly by staff from the U.S. Department of Agriculture (USDA) and the Bureau of the Census (Hurley). Benedict et al noted that Census classifications were primarily designed to present an overall picture of agriculture without thought to adapting the classifications to research or policy uses (Benedict et al.). To help overcome this limitation on the use of Census data, they proposed a new classification of farms in an article that appeared in the Journal of Farm Economics in 1944. A core argument in their proposed classification was that criteria chosen for classification should, "so far as possible, distinguish farms on the basis of significant differences in interests, characteristics, and behavior under varying conditions (Benedict et al, page 695)".

The classification system that arose assigned farms in two primary economic groups, commercial and other farms. Commercial farms were divided into six groups. Classes one through five were developed solely on the basis of sales. Class six was developed on the basis of sales, off-farm work by the operator, and the relationship of the income of the operator and family members from non-farm sources to the value of product sold. The other farms group was classified into part-time, residential and abnormal farms. Farms were considered to be part-time on the basis of a small sales volume, off-farm work (less than 100 days of work by the operator), and off-farm income being greater than the value of farm products sold. Residential farms were classified solely on the basis of a very small and limited sales volume (U.S. Dept of Comm.,1950). The key point is that the economic classification system, developed to recognize diversity among farms, drew on information about the farm as a business, the operator as an individual, and the characteristics of household. It was not constrained solely to the farm as a business establishment.

The economic classification of farms was dropped from the 1974 Census. Changes in prices and technology were a reason the economic classes were dropped along with the problem of establishing meaningful criteria for classification (Stanton). A sampling of literature suggests the economic classes had provided useful input into research and policy applications (Nikolitch and McKee; Bachman and Jones; Welsch and Moore). Classification of farms by economic class was viewed as providing information to better understand the changing structure of agriculture (Nikolitch and McKee). Stanton argued that the absence of economic classifications, "left interpretation of the distribution of farms to each reader, often unskilled in thinking about the many different forces which shifted farms from one sales class to another" (Stanton, P 25).

Classification of Farms: Examples from the Literature

USDA staff and academic faculty has developed taxonomies to characterize farming units that make up the U.S. farm sector. Two themes emerge in the literature. The first theme centers on the separation of operating units into classes that distinguish larger scale commercial-size farms from smaller units. The second largely characterizes small and part-time farming operations.

Characterizing farm operations. Research during the 1970's and 1980's advanced various classification efforts to characterize the heterogeneity existing in U.S. Agriculture. Breimyer, for example, developed two such schemes. One identified six groups of farms-smaller than family size, family size--open market, larger than family size--open market, cooperative, contractually integrated, and large corporations (Breimyer, 1978). Breimyer's second classification was a variant of the first where farms were considered as either proprietary or non-proprietary operations (Breimyer, 1991). In this scheme, the non-propriety operations consisted of integrated, cooperative, and industrial-size operations. The difficulty with implementation of classification schemes, such as those proposed by Breimyer, is that farm characteristics had to be inferred from existing Census or other data sources. Thus, numbers and characteristics of farms that would make up each of the groups were not readily available.

A more common approach was to use census sales class data either by itself or in conjunction with other data to categorize farms. Classification systems developed by Tweeten, Penn, the Congressional Budget Office, the General Accounting Office, and USDA reports on Family Farms are examples (Tweeten 1984; Penn; Congress of the United States; U.S. General Accounting Office; Carlin and Mazie). An aspect of the Tweeten, Penn, and CBO classifications that made them somewhat different from other approaches was the attempt to use multiple dimensions such as off farm work, hired labor, and sales volume to characterize farms. In his study of structural change, Tweeten classified farms as either family or non family farms, where family farms included all operations other than small farms (sales of $20,000 or less), non-family corporations, large partnerships (three or more partners), vertically coordinated operations, and excess labor-using farms (over 1.5 years of hired labor) (Tweeten). Penn concluded that, at least two and perhaps three types of farms could be grouped according to common characteristics (Penn). He labeled the groups as rural residences and hobby farms (less than $5,000 in sales), small farms ($5,000-$40,000 in sales), and primary farms (over $40,000 in sales). The Congressional Budget Office (CBO) of the U.S. Congress reported a typology of farms in 1978 that consisted of part-time farms, small-scale farms, family farms, larger-than-family farms, and

industrial farms. Census data were used to approximate the proportion of farms falling into each group. For purposes of this report, part-time farms were defined as farms where the operator was employed off-farm 200 or more days per year. Small farms were those with sales of less than $20,000. Family farms used less than 1.5 person years of hired labor and were not operated by a hired manager. The larger than family farms were non-industrialized farms that used more than 1.5 years of hired labor.

Part-time and Small Farms. Classifications have frequently included reference to small, part-time or residential farms. For example, the GAO profile considered part-time and subsistence farms to be units with sales of less than $10,000 and small farms to have sales of $10,000 to $39,999. Penn and CBO referred to similar groups of farms with a different definition. Some efforts have focused specifically on defining and classifying part-time farming. Examples include Martin and Southern's study of part-time farming in Texas, Sollie and Frese's work in Mississippi, and Ahearn and Lee's assessment of multiple job holding among households nationally (Martin and Southern; Sollie and Frese; Ahearn and Lee). Martins and Southern's definition of part-time farming was a farm having gross sales of farm products of $250 or more with the operator working 100 days of more off farm, or receiving half or more of family gross income from non farm sources (Martin and Southern). A key purpose of their classification was to examine the amount of time spent in off-farm work. To accomplish this, part-time farms were classified into groups with no, little (0-99 days), moderate (100-240 days) and full-time off-farm work (250 days or more). Sollie and Frese used Census data to focus on the occupation of farm operators. Farmers were classified, according to principal occupation, as being either single vocation or bi-vocation farmers, where single vocation farmers had farming as their principal occupation (Sollie and Frese). Ahearn and Lee drew on national survey data to use the household as a unit of observation. Part-time farming was assessed from the perspective of the primary source of household income and the allocation of work-time to off-farm work. (Ahearn and Lee).

Other authors have examined mini farms (Brooks), *bone fide* farmers (White and Clifton), created a typology for small farms (Tweeten, Cilley and Popoola), and examined small farm definitions from the prospective of public policy (Carlin and Crecink). The purpose of the Tweeten et al. small farm typology was to devise a classification to render small farms relatively homogenous within and heterogeneous among classes (Tweeten et. al p.77). In practice, farms with sales between $2,500 and $20,000 were divided into three categories. These were part-time farms (operator work 200 days or more off-farms), farms with aged operators (65years of age or older), and bone fide small farms which were approximated by the difference between the total number of small farms and the other two groups. Carlin and Crecink advanced a small farm definition drawing on two basic concepts (Carlin and Crecink). The first was a low volume business establishment, which for their purpose was defined as $20,000 and $40,000 in sales. The second was that of a farm operator or family having a low level of economic of well being, defined by income. Carlin and Crecink developed measures of household income for farm families that could be compared with incomes for non-metropolitan areas and could be used to examine how income differed among groups of small farms. This work was an early example of the use of USDA national-level survey data to examine how a specific segment of the farm sector could be defined drawing on attributes of farm operators and their farms.

The ERS Typology of Farms

The ERS typology has at its base some goals that are similar to those held for classifications reported in the literature and by the Census of Agriculture in devising the economic classification of farms. These more traditional goals are extended to reflect change that have occurred in farm households and in the farm sector. Objectives held for the typology recognize that on-going changes in farms and the food supply system and in farm households make use of standard, single-dimension classifications, such as sales class, increasingly problematic.

A key goal is to accurately describe a diverse sector that consists of households and businesses ranging from places where families enjoy open space and a rural lifestyle to businesses operated by managers that use state-of-the art technology and a variety of contracts, alliances and ventures to organize their business. ERS research has shown that farms differ greatly in cost structure, supply chain connections, and in the ways farmers access markets. Even the market for agricultural inputs has been classified into groups of farmers consisting of price buyers, performance buyers, convenience buyers, and balanced buyers (Gloy and Akridge). Likewise, goals for the operation and management of their farm businesses vary widely among farm households. Thus, the typology needs to be broad enough to reflect differences in the interests and actions undertaken by households and farms across a wide range of economic activities.

A second goal is to identify groups of small farms that are internally more homogeneous with respect to household, occupational and business characteristics. In the early 1990's ERS changed its farm-level surveys to incorporate a "retired" response to a question about major occupation in order to enhance work related to the age distribution of farmers. These data revealed that retirees, whose previous profession may or may not have been farming, accounted for 17 percent of all U.S. farm operators (Hoppe). Meanwhile, research focused on the economic circumstances of farm households identified that more than 200,000 households had limited economic opportunities based on a combination of low farm sales, few farm assets, and low household income from all sources (Perry and Ahearn). And, work had shown a growing commitment to off-farm work not only by operators but by spouses as well. To consider all farms with less than some arbitrarily chosen sales volume as small farms would obscure widely different circumstances.

A third key goal is to more accurately address the economic well being of farm households apart from the performance of the farm as a business establishment. For decades the common practice has been to view the economic well being of farm people as though it is adequately reflected by sector-wide measures of income (Morehart, et al). ERS research has established that the average household income for farm operators is comparable to the income of the average U.S. household (Perry). Likewise, about 90 percent of operator households receive some income from off-farm sources and many operators spend the majority of their work efforts in off-farm occupations. A large percentage of farm spouses also work off farm, even on large-scale farm businesses. Moreover, even when the income of the farm is negative, the income of the household tends to be positive, reflecting the contribution of income from off-farm sources.

Research has also shown that source of income varies dramatically among households, based on farm and household characteristics. Thus, a goal of the typology is to more accurately reflect household differences in level and sources of income and to help underscore large differences that exist between the financial performance of the farm and the economic well-being of the farm household.

Developing the ERS Typology From National Survey Data

The typology of farms in use at ERS was developed in the context of an applied research and estimates program focused on the farm-household unit. Objectives held for our analyses of the economic well being of farm households and the financial performance of farm businesses contributed to our work with farm classification in four ways. First, we sought to empirically measure the financial circumstances of the farm household and the farm business. Achievement of this objective required that we accurately measure the income of the farm and to fully recognize that business arrangements such as contracts or the presence of multiple households through partnering would alter the amount of income flowing from farm production to the household. Likewise, households allocated resources to and earned income from a variety of economic activities. These activities ranged from off-farm work for wages to investment in separate farm enterprises, businesses, and financial assets. The income and economic well being of the household could be substantially different from that of the farm and the household could be affected by vastly different economic and policy events than the farm.

Building on household-farm income analyses, our program also sought to accurately describe structural attributes of farms and to better understand the household-farm linkage. Changes have occurred in farm policy, in agricultural markets, in traditional farm-household institutions, and in production and information technologies. Adoption and use of technological innovations as well as farmer's response to other changes on-going in the farm sector have the potential to alter both the farm's structural attributes and the household-firm relationship. A fourth responsibility was to be in position to respond to questions about the organization and performance of the U.S. farm sector. To provide useful responses meant that our work needed to reflect differences among farms and households across the many diverse circumstances in U.S. agriculture. Obtaining information to characterize differences among farms and households was a forerunner to development of the typology.

Agricultural Resource Management Survey (ARMS). ERS developed the content of its farm-household level survey to support analyses of farms and farm households. ARMS is an annual multi-phase probabilistic survey conducted jointly by the National Agricultural Statistics Service (NASS) and ERS. Statistically, ARMS produces an annual indication of the number, types, and sizes of farms that populate U. S. agriculture and mirrors official USDA estimates published by NASS.

The ARMS is designed to provide information at three levels of observation: the farm as a business establishment; the household of operators of farms; and individuals, the operator and spouse, who manage the business and make personal, household, and farm business decisions (Table 1). While data collected through the ARMS provide an annual cross-section, the data support identification of key groups or classes of farms, like the Census of Agriculture. Both

flow and stock data are collected for the farm and the household. While income measures the annual return from earned and unearned sources, such as investment or transfers, wealth is measured at a point in time. Likewise, data elements, such as the household's assessment of basic needs, are collected to assess change in income and its sufficiency in meeting household consumption needs. Since ARMS is national in scope, it provides data to monitor year-to-year change in broad groups of farms or households. Additionally, data can be combined to monitor specific groups such as age cohorts.

Attributes can also be combined from different units of observation—the household, the farm, or the individual—to characterize groups in ways that are useful for policy discussion. The ERS typology is an example of using information about the farm, the household, and the farm operator to assign farms to a class.

Origins of the Typology. In 1997, researchers at ERS had developed a proposal to classify small farms in the United States into more homogeneous groups than could be attained through the use of a broad single dimension classification such as sales class. The proposal was to develop a classification of farms that used a combination of household, farm and operator specific information. Drawing on research completed on retirement farms and limited opportunity households, and work that had considered a dividing line between "commercial" and "noncommercial" farms, four classes of small farms were defined. They were retirement farms, residential farms, limited-resource farms, and semi-commercial farms. The basic paradigm underlying the research was that there are several types of small farms, based on occupation, income, assets, and life cycle status of the household.

In 1997, the U.S. Secretary of Agriculture appointed a National Commission on Small Farms to examine the status of small farms in the United States. The Commission was to gather and analyze information regarding small farms and to recommend to the Secretary a strategy to ensure their viability. Based on its work, the Commission defined small farms as farms with less that $250,000 in gross sales annually. This definition grew out of the Commission's assessment that it took farms of roughly this size to "provide a net farm income comparable to the income of the average non-farmer" (U.S. Dept of Agr., 1998 p 28). The Commission considered only farm production and recognized that their definition included approximately 94 percent of all U.S. farms. ERS incorporated the Commission's recommended farm size break into planned work to classify small farms. ERS also drew on its research and its work with the ARMS to illustrate that a classification of small farms based on sales alone would include a large group with such heterogeneous individual and household circumstances to make interpretation of statistical characteristics for the group as a whole highly suspect.

Classes in the Typology. The typology drew on information for the household, the farm, and the operator to create classes of farms (Hoppe, Perry and Banker). From Table 1, information about the size of the business was combined with information about the asset base and total income from all sources for households, and the age and occupational choice of individuals. The typology identifies five groups of small family farms (sales less that $250,000): limited resource, retirement, residential/lifestyle, farming occupation low sales, and faming occupation high sales (Definition Box). To cover the sector's remaining farms, the typology also identified large family farms, very large family farms, and non-family farms. In the case of

limited-resource farms, the asset base, total household income and sales volume are low. In using the ARMS to place farms into classes, this is the first group considered. Then, farms are partitioned into those with less than and greater than $250,000 in gross sales. Within the small farm group, farms are classed based on the retirement status of the operator, the choice of a non-farm occupation by the operator, level of household income, farm sales and assets, and, for the small farms whose occupation is farming, amount of gross sales. Farms are classed as large or very large family farms based on sales volume. Non-family farms are either organized as a non-family corporation or a cooperative or they are farms that are operated by hired managers. The ERS typology is inclusive of all farms, but allows a focus on various groups of small and large farms depending upon the household or farm issue being considered (Offutt).

Profiles of Households, Farmers, and Farms Included in Typology Classes

Selected data items identified in Table 1 are used to demonstrate how households, operators, and farms differ among the typology classes.

Households. Household size and age structure varies greatly across the typology groups (Table 2). Limited resource and retirement farm households have fewer people with upward of two-thirds of these households reporting two or fewer persons. Residential households mirror households that operate large and very large farms in the size structure of their households. Household composition correlates closely with the age structure of the household. The majority of farm operators in households that are residential in nature and households that operate large and very large farms are in the 35-55 year age brackets while both limited resource and retired households report a large share of operators over 65 years of age. The typology captures substantial differences in household income both in total and by source of earnings. Limited resource farms had total income on average of $11,001 in 2000. This amounts to about 19 percent of the average income reported for all U.S. households. The farms of these households generated a financial loss from current operations leaving off-farm earnings to generate funds to support household consumption and other needs. Unearned sources of income were very important to these households, especially funds from transfer programs such as Social Security. Retirement farms reported incomes equal to about 75 percent of those for all U.S. households. Farming operations also accounted for losses for retirement households again leaving off-farm sources of income to support family needs. Both earned and unearned incomes were larger for retirement households that they were for limited-resource households.

The typology shows that income levels follow a U-shaped pattern with the incomes earned by households that operate small farms where the operator considers farming his or her primary job near the level of income for retirement households and below the incomes of households that are residential or that operate larger operations. In all cases, regardless whether farming is considered the primary occupation, off-farm income from earned or unearned sources contributes substantially to household income. Only for large and very large farms does income from farming operations exceed income from off-farm sources. Off-farm income, particularly wage income, is substantially more important to households that operate small farm businesses that is the income earned from farming. More than ninety percent of residential households report wage income and more than twenty percent of these households operate another business aside from the farm. Likewise, from about a fourth of retirement households to more than half of

households that operate large farms report wage income and about a tenth of these households also report a second business. Thus, looking solely at income from the farm and trying to draw conclusions about the economic well being of households can be misleading. Reasons for incorrect conclusions would likely differ across the typology because sources of income differ, the person or persons generating the income may differ, and the number of households sharing in the income of the operation may differ greatly. Only in the case of residential, large and very large farms does household income exceed income for all U.S. households. The average for all farms would suggest that the income of farm households exceed income levels for all U.S. households.

Individuals That Operate Farms. The average age of persons who operated a farm was 55 years in 2000 (Table 3). The typology shows that average age is substantially higher for retired and limited resource operators than for other farm groups. Operators of residential and larger farms average about 50 years of age, much less that the 70 years reported for operators of retired farms. Measured by age cohorts, the typology groups show that nearly two-thirds of residential and operators of large farms range between 35 and 55 years of age. While age distributions are similar for residential and operators of large farms, experience in farming is not. Operators of residential farms have by far the smallest amount of experience, measured by years operating a farm, of any typology group. Nearly 30 percent have less than 10 years and nearly two-thirds have less than 20 years farm operating experience. Meanwhile, over half of retired operators report over 30 years experience operating a farm. Operators of large farms, though they mirror operators of residential farms in terms of age levels, tend to have substantially more experience operating a farm. This difference between operators of residential and large farms reflects career choices made by the operator. Retirement plans of operators also tend to follow differences in age distributions among the typology groupings. Of operators who reported a retirement occupation, fifty-five percent also report plans to retire from farming within five years. Only one in seven operators of large farms have such plans.

By definition, the typology cleanly separates operators into occupational groupings, except for limited resource and operators of large farms. About 5 percent of operators of large farms report a primary occupation other than farming. Across all farms 37 percent of operators report farming as their primary occupation, 45 percent report something else, and 18 percent consider themselves to be retired. But a focus on the occupational choice of operators tends to perpetuate traditional presentations of data only for operators. This obscures the complex nature of work choices in farm households. The typology reveals complex work patterns for each of the groups. Operators only tend to work off farm mostly on residential and small farm operations with gross sales less than $100,000. The primary off-farm work pattern is for either the spouse or for the operator and spouse both to work off farm. This is the case even for large farm operations, where more than a third of spouses report off-farm work. Educational attainments of operators tend to be similar to occupational choices reported by operators. Only for operators of retired and limited-resource farms did as many as twenty-five percent of operators not complete high school, with more than forty percent of limited-resource operators falling into this level of formal schooling. Operators of residential and large farms reported the highest levels of education. More than half of these operators completed some college or more. Nearly nine percent of residential farmers had graduate-level training.

Farms as Business Establishments. Farm data for the typology groups reveal and add definition to the farm number and farm value of production dichotomy drawn from traditional sales class distributions of farms (Table 4). Together, residential, retirement and limited-resource units account for two-thirds of farms and ten percent of output. The typology brings an added dimension to analyses of small farms and concentration of production. The majority of small farm businesses are operated either by persons where farming is a secondary employment activity or by persons at a stage of the business-household life cycle where production output may not be the dominant interest. While small farm businesses do not contribute a large amount to total output, they do control a substantial amount of farm acreage and contribute to certain enterprises such as cattle production. Data for ownership of cattle and swine also show that small farm units tend to own animals located on their farms while larger farm units house more animals owned by other parties. This most likely reflects use of contract arrangements by larger farm businesses. Larger units also tend to be engaged in a wider variety of enterprises and for individual units to be more diversified. Small units as a group tend to engage in production of enterprises that are compatible with use of smaller amounts of labor input.

Financial measures differ greatly among typology groups. Operating expense and economic cost ratios drop dramatically from the small retirement and residential operations to large farm units. Lower cost to output ratios are reflected in higher profits and greater returns on assets. Profits and returns are negative for retirement and residential farms as business units. But these same farm units tend to have strong financial positions as measured by assets and liabilities.

Continued Involvement in Household-Firm Unit Classification

Review of classification activities reveal long held interests in organizing data to improve the information made available for farms and to some extent for farm operators. Both in national data collections and in the literature economic classification systems have recognized that averages for all farms have little significance given differences among farms. This point was succinctly made nearly 60 years ago in the Journal of Farm Economics:

> "Such items as average income per farm and per farmer as commonly presented include hundreds of thousands of units which do not accord with the concept of a farm which is in the minds of most of the people using these data. Data are included for thousands of farmers who have retired to small acreages; for many surburban estates owned by men of large income whose contribution to agricultural income is nevertheless insignificant…Publicists write and talk about problems of the farmer, and ways of meeting them, as though these…farms are alike in their conditions, outlook, and the problems confronting them (Benedict et al.)."

Classification efforts have been governed by the availability of data. For twenty-five years, the U.S. Census of Agriculture developed an economic classification system. This system elapsed, purportedly because the data used to establish farm groups were not kept current. Research applications have been constrained by publicly available data. On-going national

surveys can help alleviate both of these traditional difficulties in farm classification, especially given today's enhanced methods of data dissemination through electronic outlets such as the Internet. Surveys, such as the ARMS, can also alter content to reflect changes in business practices and arrangements. Moreover, national survey programs can be designed to have the flexibility to move the classification focus from the business establishment to a broader household and firm unit perspective. ERS has undertaken this approach in the development of the ARMS to provide data to accurately describe and support analytical analyses of the household, the farm, and individuals who operate farms. We anticipate output from this work, especially as we delve more into analyses of household income, wealth and decisions with regard to resource use, will not only underpin maintenance of the existing typology but will also generate companion classifications focused even more tightly on the household as the unit of analysis.

Farm Typology Group Definitions

Small Family Farms
(sales less than $250,000)

Limited-resource farms. Small farms with sales less than $100,000, farm assets less than $150,000, and total operator household income less than $20,000. Operators may report any major occupation, except hired manager.

Retirement farms. Small farms whose operators report they are retired.*

Residential/lifestyle farms. Small farms whose operators report a major occupation other than farming.*

Farming-occupation farms. Small farms whose operators report farming as their major occupation.*

- **Low-sales farms.** Sales less than $100,000.
- **High-sales farms.** Sales between $100,000 and $249,999.

Other Farms

Large family farms. Sales between $250,000 and $499,999.

Very large family farms. Sales of $500,000 or more.

Non-family farms. Farms organized as non-family corporations or cooperatives, as well as farms operated by hired managers. Household income and wealth are not estimated for non-family farms.

*Excludes limited-resource farms whose operators report this occupation.

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Table 1. Characteristics of Farms, Households, and Individuals Obtained From the Agricultural Resource Management Survey, 2000

Unit of Observation		
Farm	**Household**	**Individual(s)**
Attributes Developed		
Income	Composition*	Age
Financial Position	Size	Education
Financial Performance	Age Structure*	Occupation/Labor Allocation
Cost Structure	Income Level/Source*	Farming Experience
Production Diversity	Living Expense	Off-Farm Experience*
Adoption/Use	Basic Needs Estimate	Type of Job*
Structure	Savings	Reasons for Off-Farm Work*
-size	Portfolio Composition	Career Choice*
-type	Wealth Status	Retirement/Succession
-contracts		Managerial Choices
-leasing		Goals/Attitudes

Data marked with an * are being collected in winter/spring 2002 for the 2001 calendar year. While the level of household income has been available, the person generating the income has not been known.

TABLE 2. FARM HOUSEHOLD PROFILE BY TYPOLOGY, 2000

Item	Farm typology grouping							48-State total
	Limited-resources	Retirement	Residential /lifestyle	Farming occupation /lower-sales	Farming occupation /higher-sales	Large	Very large	
				Number				
Total households	127,390	319,297	913,088	455,984	172,720	78,256	54,841	2,121,576
Average household size	2.3	2.1	3.0	2.6	3.1	3.3	3.4	2.7
				Dollars per household				
Total household income	11,001	42,849	78,375	45,741	45,071	83,812	177,444	62,019
				Households per farm				
Household sharing income	1.0	1.1	1.1	1.1	1.2	1.3	1.5	1.1
				Percent				
Operator houshold income as percent of								
U.S. Households	19.3	75.1	137.4	80.2	79.0	146.9	311.1	108.7
Total household income	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Farm income	*-27.1	*-3.8	-7.6	*-5.8	30.7	52.8	78.3	4.5
Off-farm	127.1	103.8	107.6	105.8	69.3	47.2	21.7	95.5
Earned	53.7	28.0	96.4	54.7	45.8	28.0	14.4	69.8
Unearned	73.3	75.8	11.2	51.2	23.5	19.2	7.3	25.7
Household operates another farm	na	a1.0	*1.4	3.3	2.7	*4.0	4.7	1.9
Household has nonfarm business	*3.5	*6.5	22.8	13.9	10.2	13.6	13.2	15.6
Income exceeds needs	37.4	74.1	73.6	61.8	63.9	72.1	72.6	68.1
Dependence category								
Loss from farming	64.7	63.8	75.2	46.4	13.2	9.4	7.8	57.4
75 % or more from farming	na	na	na	6.4	27.8	41.6	45.7	7.2
Operators 65 years or older	51.1	74.8	6.0	37.2	12.4	9.8	10.7	26.6
				Dollars per household				
Household net worth	109,268	481,869	389,586	569,081	711,671	985,297	1,967,826	514,212
Farm net worth	82,785	347,055	289,907	494,656	640,588	892,199	1,841,483	420,950
Nonfarm net worth	*26,483	134,814	99,679	74,425	71,083	93,099	126,343	93,263

Source: 2000 USDA Agricultural Resource Management Survey.
Coefficient of Variation = (Standard Error/Estimate)*100. * indicates that CV is greater than 25 and less than or equal to 50. , **a** indicates that CV is 77.80.
na indicates value is not available due to no observations, an undefined statistic, or reliability issues.
Rounded percents may not add precisely to 100.

Table 3.OPERATOR PROFILE BY TYPOLOGY GROUPING, 2000

Item	Farm typology grouping						All
	Limited-resource	Retirement	Residential /lifestyle	Low-sales	High-sales	Large farms	
Average Age of Operator	59.9	69.7	49.4	59.2	49.0	49.8	55.2
			Percent				
Operators in age class							
Less than 35 years	na	na	7.4	5.3	12.8	6.0	6.3
35 to 44	*13.9	na	22.9	8.8	24.1	27.0	16.3
65 years or older	51.1	74.8	6.0	37.2	12.4	10.2	26.6
Operators in education class							
Some high school or less	42.9	27.7	7.9	18.4	7.2	6.9	15.1
Completed high school	29.4	37.8	39.8	45.0	48.4	38.0	40.6
Some college	20.8	19.0	28.9	20.4	27.7	32.5	25.2
Completed college (BA, BS)	na	8.9	14.9	10.7	14.4	20.0	12.7
Graduate school	na	*6.7	8.6	*5.6	2.4	2.7	6.5
Operators in gender class							
male	73.2	87.9	91.7	90.1	95.8	97.5	90.4
female	na	12.1	8.3	9.9	na	2.5	9.6
Persons in household							
Two or fewer	70.2	83.2	45.0	69.4	45.8	40.8	57.3
Three to five	27.4	15.2	49.5	26.2	46.1	49.5	37.7
Five or more	na	na	4.4	3.9	7.0	8.6	4.0
Farming experience							
Less than 10 years	28.3	10.2	28.8	13.8	15.3	10.5	20.5
Over 30 years	41.7	54.0	18.7	48.7	31.6	29.9	33.6
Plan to Retire From Farm Work	41.6	55.1	12.6	28.5	14.5	14.5	24.4
Farm Succession Plan	34.0	30.3	26.4	37.2	29.7	36.9	30.7
Operator Occupation							
Farming	32.6	na	na	100.0	100.0	93.4	37.4
Something else	24.3	na	100.0	na	na	5.6	44.8
Retired	43.2	100.0	na	na	na	*1.0	17.7
Off-Farm Work by Operator and Spouse							
Only operator	21.0	*7.2	36.0	16.1	9.5	9.4	22.7
Only spouse	na	14.9	na	22.8	31.1	32.9	12.8
Neither	65.5	73.9	4.1	45.4	42.7	46.6	33.0
Both	na	na	58.2	15.7	16.7	11.1	31.5
			Hours				
Operator Work Hours	1382.9	936.5	2981.3	2263.8	3112.2	3066.1	2434.1
Operator Farm Work	919.5	819.4	897.7	1868.7	2827.5	2846.6	1375.3
Spouse Work Hours	437.1	482.3	1316.5	1059.9	1370.8	1381.0	1091.1
Spouse Farm Work	203.8	181.1	239.7	388.4	646.5	720.7	324.0

Source: 2000 USDA Agricultural Resource Management Survey.
Coefficient of **V**ariation = (Standard Error/Estimate)*100. * indicates that CV is greater than 25 and less than or equal to 50. .
na indicates value is not available due to no observations, an undefined statistic, or reliability issues.
Rounded percents may not add precisely to 100.

Table 4. FARM PROFILE BY TYPOLOGY GROUP, 2000

Item	Farm typology							48-State total
	Limited-resources	Retirement	Residential /lifestyle	Farming occupation /lower-sales	Farming occupation /higher-sales	Large	Very large	
Number of farms	128,674	320,055	913,876	453,791	171,824	78,382	54,886	2,121,489
Distribution of farms	6.1	15.1	43.1	21.4	8.1	3.7	2.6	100.0
Distribution of value of production	0.7	1.8	7.7	10.0	17.8	18.3	43.7	100.0
Number of farms by type:								
Cash grains and oilseeds	10,626	22,230	95,824	103,732	72,302	35,124	13,568	353,407
Tobacco	na	na	25,803	17,767	4,652	*1,101	*332	65,634
Cotton	na	na	na	2,987	4,284	2,407	2,285	17,155
Vegetables, fruits, nuts	na	*31,278	35,832	27,595	3,863	3,896	4,924	110,096
Nursery, greenhouse, floriculture	na	na	*17,439	*14,723	11,258	na	2,423	55,632
Other crops	na	75,963	125,892	25,172	4,959	1,919	2,582	253,741
Beef cattle	65,721	141,435	434,781	192,588	30,533	9,474	6,359	880,890
Dairy	na	na	*5,946	25,467	30,994	12,577	8,724	92,115
Hogs	na	na	na	na	na	4,531	3,894	24,130
Other livestock	na	27,041	154,850	38,111	na	na	na	237,716
Poultry and eggs	na	na	na	na	na	4,588	9,405	30,974
Number of beef animals (per farm)	11	15	19	39	83	103	199	35
Number of beef animals owned	11	14	19	36	74	93	164	32
Number of hogs	na	na	*2	4	29	128	317	17
Number of hogs owned	na	na	*1	4	*20	89	173	11
Farm Diversification Index	0.05	0.04	0.06	0.11	0.19	0.20	0.14	0.09
Owned acres operated (per farm)	48	130	111	268	450	616	1,113	216
Rented acres	*76	22	59	176	606	1,077	*1,806	206
Total acres operated	124	152	170	444	1,056	1,694	*2,922	422
Percent of farms with debt	*23.4	15.7	42.5	43.8	72.8	74.0	77.8	42.1
Financial measures:								
Financial efficiency:								
Operating expense ratio (*percent*)	116.95	91.68	120.83	90.25	79.32	76.00	77.40	83.53
Economic cost/Output ratio (*percent*)	252.51	221.72	224.40	171.73	113.88	92.39	87.82	116.69
Profitability:								
Return on assets (*percent*)	-10.79	-0.92	-2.37	-2.13	c-0.15	2.38	5.43	*-0.40
Operating profit margin (*percent*)	-89.48	-19.81	-39.77	-24.87	c-0.70	8.76	14.80	*-2.70
Liquidity:								
Current ratio	4.0	*12.4	3.0	3.9	2.7	2.6	*3.5	3.3
Solvency:								
Debt/asset ratio (*percent*)	*7.58	2.28	8.60	7.38	14.87	16.86	17.94	10.53
Repayment capacity:								
Term debt coverage ratio	#2.30	*6.02	1.21	2.81	3.08	3.63	4.36	3.01

Source: 2000 USDA Agricultural Resource Management Survey.

Based on 9,863 observations. **C**oefficient of **V**ariation = (Standard Error/Estimate)*100. * indicates that CV is greater than 25 and less than or equal to 50. # indicates that CV is greater than 50 and less than or equal to 75. **c** indicates that CV is above 75.