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Financial Characteristics of Vegetable and Melon Farms

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Abstract

Vegetable and melon production is among the more financially successful components of U.S. agriculture. Based on data from USDA's Agricultural Resource Management Survey, this study provides a financial profile of specialized U.S. vegetable farms (farms with at least 50 percent of total value of production derived from vegetables and melons). During 2005-07, these farms generated 14 percent of all U.S. farm cash receipts and 6 percent of U.S. farm export value. Over the period, an average of 95 percent of the value of U.S. vegetable production was accounted for annually by operations with \$250,000 or more in sales. These large farms had a debt-to-asset ratio of 14 percent, the same as all other large U.S. farms and ranches. Sixty percent of these large vegetable farms were classified as being in favorable financial condition during 2005-07, with an average net worth over \$3 million.

Keywords

Vegetables, farms, financial, ratios, viability, characteristics, income, net worth.

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Vegetable Farming Is Diverse and Complex

Vegetable¹ and melon production is a diverse, complex, management-intensive, and little-subsidized business in the United States. It is also among the more financially successful components of U.S. agriculture. Today, the industry faces an array of challenges:

- Chronic farm labor shortages
- Strong competition in export markets
- Pressure in domestic markets from low-cost imports
- Food safety concerns
- Competition for land and water from both urban encroachment and alternative crops
- Rising input prices

How the vegetable and melon production industry stands up to these challenges depends in large part on the financial well-being of the backbone of this agricultural sector—the growers.

As measured in a variety of ways, vegetable and melon farms are an important component of U.S. agriculture. U.S. production of vegetables and melons occurs on less than 7 million acres, about 2 percent of all harvested cropland. From this small footprint, however, comes a diverse set of high-value products, which generated 14 percent of all farm crop cash receipts and 6 percent of U.S. farm export value during 2005-07 (USDA, ERS(g)). U.S. per capita consumption of all fresh and processing vegetables averaged 435 pounds during 2005-07, down slightly from 1995-97 but 12 percent above 1985-87. Along with fruits and nuts, vegetables and melons have long been recognized as vital components in the nutritional health and well-being of the Nation. Spurred largely by health and diet concerns of an aging and more ethnically diverse U.S. population, increases in vegetable consumption are expected over the next decade.

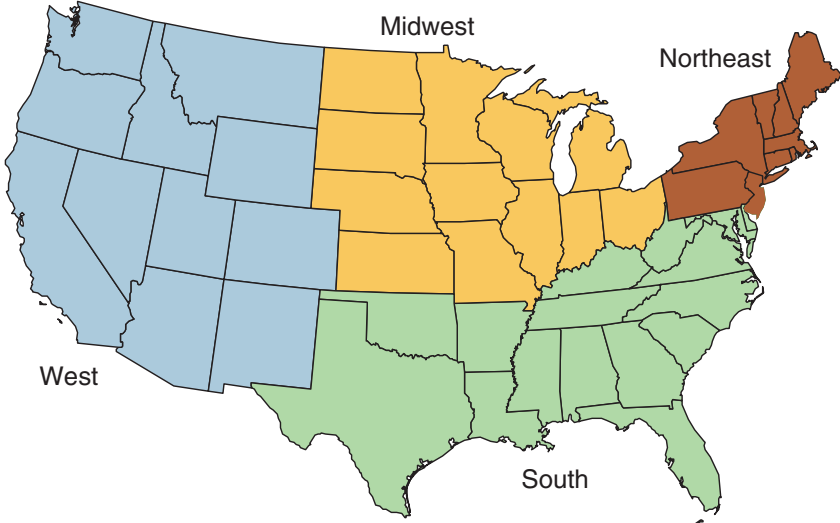
Because the industry receives few subsidies and operates in an economic climate that is very dynamic, it is important to have an understanding of the financial status and characteristics of specialized vegetable farms to adequately evaluate performance and future developments. Are debt levels on these farms high relative to those of other farms? How profitable are farms that specialize in vegetables compared with both nonspecialized vegetable farms and farms producing other commodities? The answers can provide insights into the ability of U.S. vegetable farms to compete in world markets.

In this report, ERS uses the application of financial ratios to industry-level income and finance statements to evaluate the overall financial condition of a farm business sector. Ratio analysis helps identify key financial trends in an industry by facilitating the comparison of financial performance among farm sizes, regions, and farm types. To this end, the economic standing of the vegetable and melon sector is analyzed using a variety of ratios covering solvency, liquidity, profitability, and efficiency.

¹ The term vegetables as defined in this paper includes all fresh and processing vegetables, including potatoes, sweet potatoes, dry beans, dry peas, and lentils.

Information from USDA’s annual Agricultural Resource Management Survey (ARMS—see box, “About the ARMS Survey”), a joint effort between ERS and the National Agricultural Statistics Service, is used to present a financial snapshot of the U.S. vegetable and melon production sector over three 3-year periods (1999-2001, 2002-04, and 2005-07) (USDA, ERS(g)). Financial characteristics of U.S. vegetable farms are examined by farm size and census region (see fig. 1) and compared with those of other U.S. farm types.

Figure 1
States included in each census region



Source: Prepared by USDA, ERS using data from U.S. Department of Commerce, U.S. Census Bureau.

About the ARMS Survey

This report uses data from USDA’s Agricultural Resource Management Survey (ARMS), a joint effort conducted annually by ERS and the National Agricultural Statistics Service. Since 1984, this survey (formerly known as the Farm Costs and Returns Survey) has been the most complete annual source of data on the production costs and returns for farm commodities as well as the financial condition of farm and ranch operations. In 1992, the survey was enhanced through the addition of questions pertaining to various farm and rural resource issues.

Each operation that participates in ARMS represents a statistically determined number of other operations. For example, a large vegetable farm might represent 20 other similar operations, while a small vegetable producer might represent several hundred comparable operations. During 2005-07, ARMS data represented 30,449 specialized vegetable and melon farms. This compares with the 2007 Census of Agriculture, which showed a North American Industry Classification System (NAICS) total of 40,589 specialized vegetable and melon farms in the United States.

Although ARMS contains a wealth of information on vegetable farms, many questions about the financial characteristics of vegetable operations remain unanswered. For example, does the financial health of vegetable farms vary according to the kinds of vegetables they produce? To portray the financial characteristics in more detail, ARMS would have to include data on more vegetable farms as well as add more questions specific to vegetable operations.

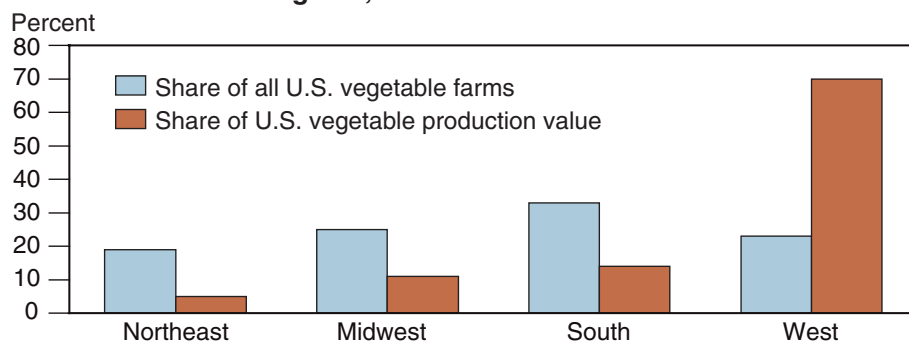
Classifying Vegetable Farms

A farm is currently defined, for statistical purposes, as any place from which \$1,000 or more of agricultural products were sold or normally would have been sold annually (USDA, ERS(d)). Product diversification on farms today is more a rule than an exception, with a given farm's type generally determined by the commodity that best characterizes the farm's primary production activity. In this report, farms are defined as *specialized vegetable farms* if vegetables and melons account for at least half of the total value of farm production. According to data derived from ARMS, these specialized farms represent the bulk of U.S. vegetable and melon output, relying heavily on vegetable sales for a substantial proportion of their farm income. On average, specialized vegetable farms accounted for 55 percent of all the farms producing vegetables in the United States and contributed 88 percent of the total value of U.S. vegetable production during 2005-07. The remainder of product sales on these farms came from such commodities as cotton or grain.

Regionally, these farms tend to be most heavily concentrated in the South, with substantial numbers also found in the Midwest and West (fig. 2). However, the West dominates in terms of vegetable crop value, with about two-thirds of the U.S. total for vegetable and melon farms in 2005-07. Although a significant volume of vegetables is also grown in the Midwest and Northeast, operations in these areas tend to rely more on other crops for their farm revenue.

Specialized vegetable farms are classified into four groups based on annual total value of farm production: small (value of production less than \$40,000), medium (\$40,000 to \$249,999), large (\$250,000 to \$999,999), and very large (more than \$1 million). Farms in the large and very large categories are also sometimes grouped together for analytical purposes and defined as *commercial farms*. About 8 percent of specialized vegetable farms are classified as very large, each producing \$1 million or more of agricultural commodities annually during 2005-07. The very large farms accounted for 87 percent of the total value of vegetables produced by all specialized vegetable farms and

Figure 2
**Specialized U.S. vegetable and melon farms:
Distribution across regions, 2005-07**



Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

tend to be concentrated in the West. Vegetable and melon farms that produced less than \$40,000 worth of commodities (small farms) per year made up 67 percent of these farms yet accounted for just 1 percent of the total value of U.S. vegetable production. Small farms are largely concentrated in the South.

Given the inherently risky nature of agricultural production, commercial farms may look to commodity diversification (spreading production and market risk) as an important financial strategy. In general, U.S. farms that are medium sized or larger are more likely to produce multiple commodities, with about three-fifths of all farms in these groups producing three or more commodities (Hoppe et al.). During 2005-07, according to ARMS data, medium and larger specialized vegetable and melon farms produced an average of two commodities.²

The specialized vegetable and melon farm group consists of hundreds of individual commodity markets, most of which feature unique supply-and-demand characteristics. Thus, the aggregate data for specialized vegetable and melon farms may not be representative of any single commodity within the industry. This is also true to a lesser extent for farms raising individual vegetables, which may serve both fresh and processed markets, such as sweet corn or tomatoes. In the case of tomatoes, cash receipts per acre for fresh-market tomatoes differ radically from those for tomatoes grown for processing. This is due largely to much higher unit prices for fresh-market products. While an acre of processing tomatoes (based on f.o.b. plant door price) was valued at \$2,476 during 2005-07, an acre of fresh tomatoes was valued at \$12,212 (based on f.o.b. shipping-point price). Manual labor requirements for harvesting make the costs of producing an acre of fresh tomatoes much greater than those for processing tomatoes, which are mechanically harvested. According to a 2008 sample budget prepared by the University of California, the total cost for an acre of processing tomatoes grown in the Sacramento Valley was \$2,555 (Miyao et al.). In comparison, the University of Florida estimated total costs (including hand harvest and packing) for an acre of fresh market tomatoes grown in the southwestern Florida area as \$13,974 in 2005-06 (University of Florida (a)).³

For most field-grown crops, farm size influences unit production costs and farm income. Small farms are generally associated with a low volume of production, high per unit costs, and low net farm income. According to ARMS data, the average size (measured in acres) of all specialized vegetable and melon farms during 2005-07 was 254 acres, of which 78 percent were harvested cropland. Regionally, average farm size ranged from 545 acres in the West to 155 acres in the Midwest. Harvested cropland as a percentage of total operated acres was much larger in the West, about 94 percent, compared with 79 percent in the Midwest, 58 percent in the South, and 51 percent in the Northeast.

² It is important to note that vegetables and melons were considered to be a single commodity in this analysis because of limited commodity-specific detail collected by ARMS for high-valued crops. In practice, most commercial vegetable farms produce several vegetable crops.

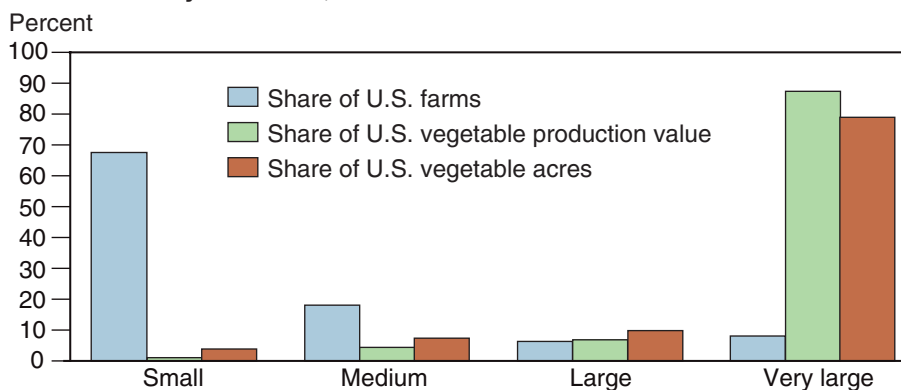
³ A California budget was chosen for processing because the State produces 95 percent of the Nation's processing tomatoes. A Florida budget was chosen because the State is the leading producer of fresh market tomatoes, and southwestern Florida is the primary producing area. The years chosen were the closest available to the 2005-07 period.

Vegetable Production Concentrated on Large Farms

As with most agricultural commodities, vegetable production has become increasingly concentrated over time as larger, more efficient farms have garnered a greater share of the domestic market. Thus, it is no surprise that ARMS data reveal that a majority of U.S. vegetable output comes from the largest farms. About 8 percent of all specialized vegetable and melon farms produced \$1 million or more of agricultural commodities per year during 2005-07. These large commercial farms accounted for 87 percent of the total value of U.S. vegetable production (fig. 3). Given the relatively high per acre values of such crops as potatoes, tomatoes, peppers, and asparagus, harvested area of these commodities is highly concentrated among farms with more than \$1 million in sales per year. For example, data from the 2007 Census of Agriculture show that 93 percent of the area for tomatoes grown for processing and 83 percent of the area for all potatoes come from farms with \$1 million or more in sales. Potatoes and tomatoes are the two single largest U.S. vegetable crops in terms of production and per capita use. Combined, these two crops account for about one-fourth of all vegetable and melon cash receipts.

Specialized vegetable and melon farms that annually produced less than \$40,000 worth of commodities (many are part-time operations) made up 68 percent of all specialized vegetable and melon farms yet accounted for just 1 percent of the value of vegetable and melon production in 2005-07. Although relatively minor on a national scale, the output of these farms serves a niche of growing importance in local markets. These small operations, many of which are limited by climate to short growing seasons, help meet the demand of retailers, restaurants, and farmers' markets for locally produced vegetables and melons.

Figure 3
**Specialized U.S. vegetable and melon farms:
 Distribution by farm size, 2005-07**



Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

The concentration of output on larger operations is also reflected in operator characteristics. Most growers operating large or midsized farms consider farming to be their primary occupation. In 2005-07, about 98 percent of the operators of very large vegetable farms and 95 percent of those on midsized farms considered farming to be their major occupation. Over the same period, only 42 percent of the operators of small vegetable farms said farming was their major occupation, a dropoff from 56 percent in 1990.

Financial Well-Being of Vegetable Farms Mixed

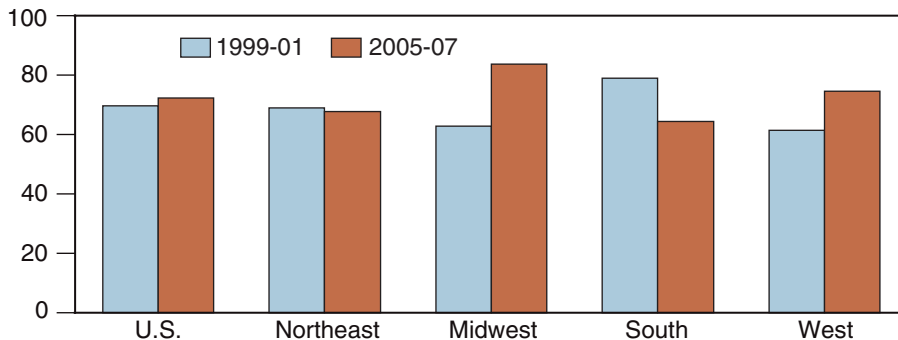
The financial well-being of U.S. specialized vegetable and melon farms has changed over the past decade. In general, the financial position of these farms appears to have improved between 1999-2001 and 2005-07. As expected, conditions varied by region, with ARMS data showing farms in the West and Midwest being better off than those in the South and Northeast. In the South (especially in Florida and Texas), severe weather incidents (largely hurricanes and freezes) and continued pressure from imports has eroded the sector's financial standing. Like other farmers, vegetable and melon growers operate in a risk-laden industry. Growers are subject to annual variations in income caused by changing markets and weather-related disruptions in production. Although crop insurance and Federal disaster relief can blunt the inevitable financial trauma caused by drought, untimely frost, and other weather extremes, vegetable and melon growers receive little protection from unforeseen gyrations in input costs and commodity prices.

USDA classifies the financial condition of a farm business as favorable if it has a debt-to-asset ratio of 40 percent or less and a positive net cash income. In the aggregate, 72 percent of all specialized vegetable and melon farms were classified as being in "favorable financial condition" during 2005-07 (fig. 4), compared with nearly 63 percent for all other U.S. farms. Among very large specialized vegetable and melon farms, 60 percent were grouped into the favorable category, compared with 65 percent for all other types of large farms and ranches in the United States. On the other hand, about 28 percent of all specialized vegetable and melon farms were in weak financial condition in 2005-07 because they either had more than \$40 of debt for each \$100 of farm assets or suffered negative net cash farm income. In general, it is not unusual for farms to experience negative net cash income in any given year because of poor weather, extremely low market prices, or other temporary conditions.

Figure 4

Share of vegetable and melon farms in favorable financial condition

Percent of farms



Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

During 2005-07, about 75 percent of specialized vegetable and melon farms in the West were considered to be in a favorable financial condition. This was a marked improvement over 1999-2001 when only 61 percent were in a favorable position, largely because of reduced farm income during those years. The lower income was likely the result of an extended period of low prices for vegetables and melons, which largely occurred during 1999 and 2000. Despite periods of low prices and revenue reductions that seem to define the sector at times, few specialized vegetable and melon farms in the West have fallen into market-induced financial trouble over the past decade. In fact, only 4 percent of farms in the West were classified as being so weak that they were considered vulnerable to failure. In the Midwest, where contract-based processing vegetables provide a steady foundation, 84 percent of specialized vegetable and melon farms were considered to be in favorable financial condition during 2005-07, up from 63 percent during 1999-2001.

Conversely, the financial situation of specialized vegetable and melon farms in the South declined between 1999-2001 and 2005-07. In the South, growers in States such as Texas and Florida have likely been under financial pressure from several years of weather-related production problems and various competitive issues leading to lost market share (e.g., increasing imports, rising demand for greenhouse vegetables eroding the market share of field-grown crops). Over the past decade, many firms have left the business or have merged with other farms. For those remaining, despite increasingly marginalized incomes, only 5 percent of vegetable and melon operations in the South have fallen into the vulnerable category in the last decade.

Financial Ratios: Solvency and Efficiency Improves

The financial performance of specialized vegetable and melon farms can be evaluated using a variety of financial ratios illustrating the relationship between various income and balance sheet variables at particular points in time (in this case, 3-year averages) (Short). These ratios provide a means of monitoring the financial well-being of an industry by region and sales class over time, while also allowing comparative analysis of specialized vegetable farms with other farm types. Although there are many applicable ratios, this analysis focuses on a few selected ratios that specifically measure *solvency* (e.g., debt-to-asset ratio, debt-to-equity ratio), *profitability* (e.g., returns-on-assets ratio, operating profit margin ratio), *efficiency* (e.g., operating-expense ratio), and *liquidity* (e.g., the current ratio, debt-servicing ratio).⁴

Solvency Improves

A critical measure of farm solvency indicative of the level of financial risk, the *debt-to-asset ratio* can help identify the relative debt burdens of farm businesses. Farms with excessive amounts of debt may have difficulty borrowing money for operating funds or expansion or may eventually be forced to default on loan payments during extended periods of low farm income. During 2005-07, the debt-to-asset ratio of all specialized vegetable and melon farms averaged 11.7 percent (\$11.70 of debt for every \$100 of farm assets), an improvement from 12.6 percent during 1999-2001 (table 1). Although improved, the solvency ratio for specialized vegetable and melon farms was above the 8.0 percent average for all other U.S. farms and ranches in 2005-07. According to ARMS data, as farm size increases, specialized vegetable and melon farms become more leveraged, with the debt-to-asset ratios running from a low of 4.9 percent for the smallest farms (annual sales of less than \$40,000) to 16.6 percent for very large farms (annual sales of

⁴For definitions of many of the terms and ratios used in this report, visit the glossary page of the ERS Farm Income and Costs Briefing Room at www.ers.usda.gov/briefing/farincome/glossary/glossary.htm

Table 1

Selected financial ratios for specialized U.S. vegetable and melon farms¹

Financial ratio ²	1999-2001	2002-04	2005-07	1999-2007
	<i>Percent</i>			
Debt-to-asset ratio	12.6	13.7	11.7	12.6
Debt-to-equity ratio	14.4	15.8	13.3	14.4
Return on assets	0.8	5.1	7.2	4.8
Operating profit margin	1.7	11.9	17.5	11.3
Debt coverage ratio	3.2	5.4	6.2	5.1
Operating expense ratio	86.6	76.4	75.1	78.7
Debt servicing ratio	4.8	4.6	4.6	4.7
Current ratio (working capital)	2.8	1.9	2.3	2.3

¹Averages over indicated periods.

² See text for ratio definitions.

Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

\$1 million or more). This higher range was comparable with the 17.1 percent for all other U.S. very large farms and ranches.

As in most regions, vegetable farms in the Northeast consist of a combination of commercial farms (such as growers of sweet corn in New York or potatoes in Maine) and small part-time operations, with the latter more prevalent. Some small farms operate part-time as “u-pick” operations and/or serve local markets and farm stands. These vegetable and melon farms are not heavily capitalized but tend to sit on valuable land since many are nestled on the urban fringe. As a result, the debt-to-asset ratio for vegetable and melon farms in the Northeast was a very low 6.4 percent during 2005-07.

In the Midwest, especially in States such as Wisconsin and Minnesota, about two-thirds of vegetable and melon production is geared toward the processing market (e.g., sweet corn, green beans, green peas, and cucumbers). States like Michigan and Ohio are active in both fresh and processing vegetable markets. With a substantial share of processing vegetables grown on midsized farms in the Midwest, farms in this region tend to be more highly capitalized than farms in the Northeast or South (because processing vegetable production is highly mechanized). As a result, the debt-to-asset ratio on Midwest vegetable and melon farms was 10.4 percent—higher than in the Northeast but still very favorable compared with most farm and nonfarm businesses.

The West (which includes the Northwest) is a very productive region, featuring many large commercial vegetable and melon farms, which provide more than half of all national vegetable output. This region recorded a debt-to-asset ratio of 15.2 percent in 2005-07 (down from 17.2 percent in 1999-2001), indicating greater use of debt capital than other regions. Still low relative to most industries, the larger ratio in the West reflects greater average farm size (more real estate debt), the use of larger and more expensive machinery (greater capital requirements), and a longer growing season (ability to double crop, which requires more short-term operating capital). Such farms generate more revenue but also require greater debt exposure than smaller, less mechanized farms in the South and Northeast. For example, according to the 2007 Census of Agriculture, California vegetable and melon farms averaged 616 acres (third in size in the State behind cotton farms and beef ranches), with an average of \$1.58 million in annual production expenses and \$429,000 in farm machinery per farm. In comparison, New York vegetable and melon farms averaged 182 acres (third largest in the State behind oilseed/grain farms and dairy farms), with an average annual per farm production expense of about \$139,000 and about \$131,000 in farm machinery.

The *debt-to-equity ratio* is an indicator of the relative share of funds invested by both farm operators (equity) and their lenders (debt). This is a measure of a farm’s financial leverage, with higher values generally associated with increased business risk—especially for those farms that may already be experiencing cash flow problems. This ratio is also an indicator of a farm’s ability to repay creditors, with an increasing ratio over time indicating the farm may be relying more on debt financing than on farm income. During 2005-07, specialized vegetable and melon farms posted an average debt-to-equity ratio of 13.3 percent—down from 14.4 percent during 1999-2001.

Because of larger farm size and heavy investment in farm equipment (and cooling, packing, and storage facilities for integrated grower-shippers), farms in the West had the highest debt-to-equity ratio, 17.9 percent, during 2005-07—down from 20.8 during 1999-2001. With high land values and relatively limited debt, the lowest debt-to-equity ratio was 6.8 percent in the Northeast, where average farm sizes are also smaller and less capital intensive than those in other regions. Nationally, small (and, often, largely self-financed) vegetable and melon farms enjoyed a very favorable average debt-to-equity ratio of just 5.2 percent during 2005-07. Meanwhile, very large farms (such as those growing processing tomatoes, celery, and lettuce), which generally require more leverage to plant and harvest multimillion dollar crops, had a debt-to-equity ratio of just under 20 percent during 2005-07.

Profitability Improves

Serving as a measure of profitability, the *return-on-assets ratio* measures the net income a farm business generates per dollar of farm assets. The largest specialized vegetable farms produced \$16.61 of net farm income for every \$100 of assets in 2005-07, while the smallest vegetable farms lost \$4.88 for each \$100 of assets. For other types of farms and ranches, net income generated per \$100 of farm assets was \$10.02 in the largest size group, while there was a \$2.15 loss per \$100 of assets in the smallest size group. Among farms in all regions, those in the West, which has a preponderance of large and very large vegetable and melon farms, had more assets, employed them more profitably, and generated the most net income per dollar of assets. Farms in the Midwest and South had the next highest totals.

The *operating profit margin* indicates farm profit (net income) per dollar of production value and is another useful measure of farm business profitability. This ratio is the proportion of a farm's revenue remaining after expenses. A strong (high) operating margin better enables a farm to handle fixed costs and service debt. Based on this measure, the largest specialized vegetable and melon farms were the most profitable in 2005-07, generating \$24.68 of profit for each \$100 of commodities they produced. The profit margin for other kinds of large farms and ranches was similar at 24.2 percent of gross production value. The small and mid-sized specialized vegetable farms had negative profit margins, with small farms losing \$77.66 and mid-sized farms losing \$26.30 per \$100 of farm production value.

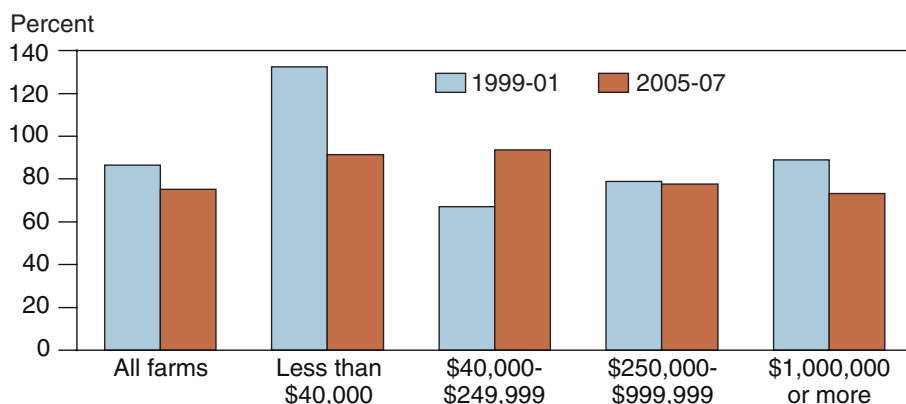
Profit margins fluctuate over time with changes in supply and demand caused by such factors as severe weather events (freezes and hurricanes), the business cycle (recessions and expansions), and changes in world trade (trade agreements). For example, the recession of 2001 sharply reduced demand (especially in the foodservice sector), slowing revenue growth. Meanwhile, strong yields led to large supplies and low prices during 1999 and early 2000. These events reduced vegetable farm revenue, leading to generally low operating profit margins during 1999-2001.

Efficiency Increases

Producing vegetables and melons is a costly, input-intensive process that demands a high level of management precision and input efficiency. An indicator of this efficiency is the *operating-expense ratio*, which shows how much a farm business spends on inputs for each dollar of income produced (as expected, the lower the better) (fig. 5). During the normal course of business, vegetable and melon farms must cover expenditures for labor, seed and plants, fertilizer, and a host of other inputs. The largest specialized vegetable farms spent \$73.23 on inputs for every \$100 of farm income in 2005-07, compared with \$73.64 for all other very large farms and ranches. Very large farms and those in the West were generally the most efficient in this regard. Vegetable and melon farms in the West had a ratio of 72.8 percent during 2005-07, compared with farms in the South, which reported a less efficient 84.7 percent.

Figure 5

Specialized U.S. vegetable and melon farms: Operating expense ratio by sales class



Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Repayment Capacity Improves

Despite its importance, the debt-to-asset ratio alone is not generally considered sufficient evidence of impending default because it does not provide enough information about the year-to-year economic well-being of the farm household. For example, even farm businesses with high debt-to-asset ratios may be able to easily make scheduled principal and interest payments if they have strong cash flow. Thus, analysts favor a measure of repayment capacity that incorporates both income and debt payment obligations, the *debt coverage ratio*. This ratio, which is adjusted farm and off-farm net income divided by loan payments, measures net income available for debt coverage relative to required debt service payments; the higher the ratio, the better.

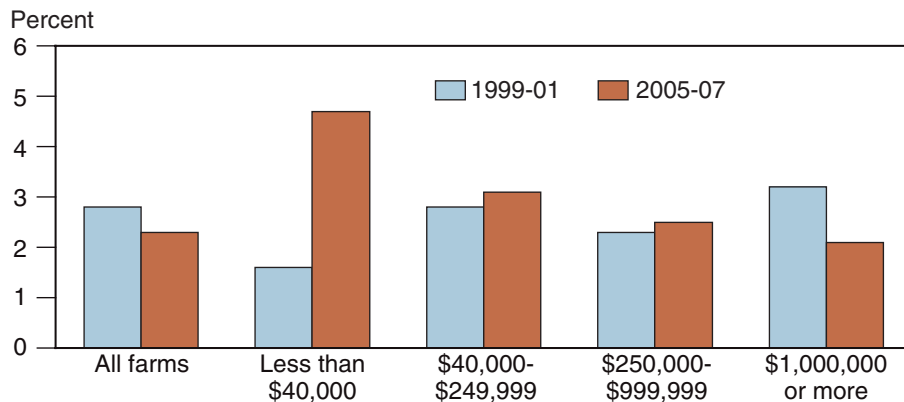
The adjusted 2005-07 net income of specialized vegetable and melon farms was 6.2 percent greater than the amount needed for debt service—up from just 3.2 percent in 1999-2001 (see table 1). The largest specialized vegetable and melon farms had 7.3 percent of their 2005-07 net income left after servicing debt, compared with 4.9 percent for all other types of farms and ranches in the same size group.

Liquidity Down Slightly

Indicators of liquidity reflect the ability of the farm business to meet short-term financial obligations. One way to measure liquidity is through the *current ratio*. The current ratio is defined as current assets (includes purchased inputs, cash invested in crops in the ground, and prepaid insurance) divided by current liabilities (short-term debt, accrued interest, etc.). For most farm businesses, liquidity is especially important during times of tight credit as experienced during the current economic downturn. A strong current ratio (generally 2.0 or higher) is viewed favorably by lenders who must gauge ability to repay loans—especially within an industry like agriculture that is subject to more income variability than most other industries. Lenders who finance such things as annual or seasonal operating loans would be keenly aware of liquidity measures such as the current ratio. They would also be concerned with the mix of vegetables to be planted (to spread risk), the existence of contracts with processors, projected product prices, availability of crop insurance, and the cost of inputs for the coming year.

Although it has a current ratio below the all-farm average, the specialized vegetable and melon production sector remains in a strong financial position in terms of liquidity. The current ratio of all specialized vegetable and melon farms averaged 2.3 percent during 2005-07, compared with 2.8 percent during 1999-2001, indicating a slight erosion in the ability to repay loans, but still favorable (above 2.0). Small and midsized farms and those in the Midwest and Northeast (where average farm size was the smallest) generally were the most liquid. This likely reflects lighter use of short-term financing (as indicated by lower interest expenses) than that of large farms and operations in the West that routinely rely on operating loans to finance their day-to-day operations. The current ratio for very large farms was 2.1 percent during 2005-07—compared with 3.2 percent during 1999-2001 (fig. 6). Vegetable farms in the West had a ratio of 2.2 percent during 2005-07, lower than both farms in the Midwest (3.7 percent) and all U.S. farms (3.4 percent).

Figure 6
Current ratio on U.S. vegetable and melon farms, by sales class



Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

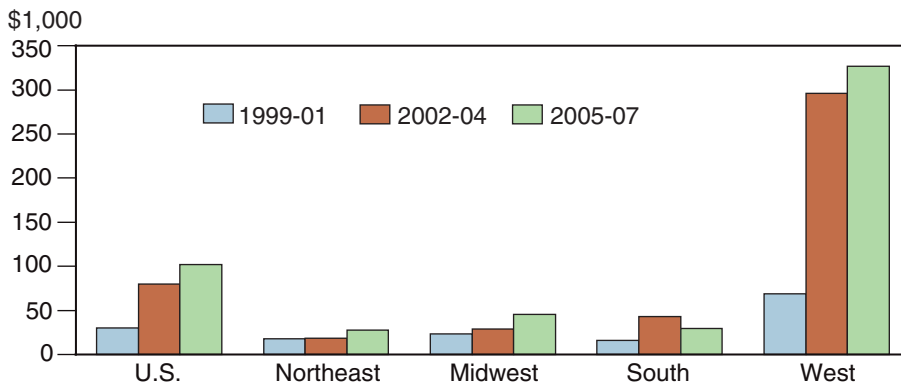
Despite the differences, the current ratios suggest that both vegetable farms and all other farm types (based on the average) were still able to meet their short-term obligations. The lower current ratio suggests that specialized vegetable and melon farms make greater use of short-term loans, which would be consistent with the high-cost nature of this agricultural sector. For example, according to crop budgets prepared by the University of Georgia, variable operating costs per acre for dry bulb onions were expected to average about \$1,500 per acre in 2008, compared with \$267 for an acre of intensively managed irrigated wheat for grain (University of Georgia). Pre-harvest variable costs (cultural costs) were even greater for such crops as bell peppers in southwestern Florida (\$9,121/acre in 2008/09) and iceberg lettuce in central coast California (\$2,232/acre in 2009) (University of Florida (b); Smith et al.).

Net Farm Income Remains Variable

During 2005-07, nominal dollar net farm income across all specialized vegetable and melon farms averaged \$101,975 per year per farm, up from \$30,070 during 1999-2001. Net farm income represented about 25 percent of gross cash farm income of all specialized vegetable and melon farms in 2005-07, compared with 11 percent during 1999-2001. Given much larger average farm sizes, operations in the West received \$326,766 per farm in 2005-07—by far the largest net farm income among the regions (fig. 7). This represented about 27 percent of gross farm income. The largest vegetable and melon farms, many of which are in the West, averaged \$3 million per farm in total cash expenses during 2005-07. Average cash expenses on all other very large U.S. farms and ranches in the same size category were \$1.7 million smaller. At the same time, vegetable farm gross cash income averaged \$4.1 million per farm. As a result, the average net cash farm income on very large specialized vegetable and melon farms was 1.8 times that of all other very large farms and ranches.

After expenses were taken into account, farms in the Midwest (where the production of vegetables for processing is common) had the second-largest net income among all farms. As in 1999-2001, vegetable farms in the Midwest realized the greatest share of gross farm income reaching the bottom line in 2005-07, with net farm income accounting for 31 percent of gross income—up from 19 percent during 1999-2001. During both time periods, expenses for farms in the Northeast (largely small operations) accounted for a greater share of gross income than farms in the other three regions. As expected, these averages mask substantial diversity within each region, as many States have large and very large vegetable and melon operations. For example, Southern States Florida, Georgia, and Texas have large and very large vegetable and melon farms, and New York has large and very large processing vegetable farms.

Figure 7
**Specialized U.S. vegetable and melon farms:
 Average per farm net income**



Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Many market participants are involved in providing the resources needed by specialized vegetable and melon farms, and they share in the income the farms generate. These stakeholders include labor, financial institutions, landlords, and the Government. In 2005-07, farm laborers received \$21 in wages and benefits for each \$100 of gross cash farm income earned by vegetable operations. Having provided money for operating expenses and capital expenditures, lenders received \$2.20 in interest payments per \$100 of gross cash income. State and local governments maintain roads, water systems, and other infrastructure needed by farms. Governments received \$1.20 in property taxes and license fees for every \$100 in gross cash farm income of vegetable operations in 2005-07.

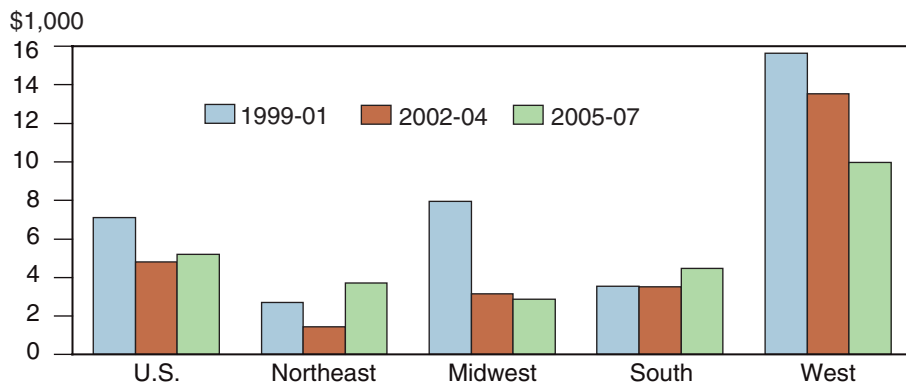
Government Payments Sizeable on Large Farms

In general, the policy profile of the fruit and vegetable sector has risen during each of the past two farm bill debates. Other than dry peas (including chick-peas) and lentils, however, the vegetable and melon enterprises on these farms do not regularly receive payments from the Treasury. Nevertheless, because the majority of vegetable growers rotate program crops (such as wheat, field corn, and cotton) with most vegetables and melons, the bulk of Government payments received by vegetable and melon farms comes from commodity-related program payments. A smaller share originates from conservation program payments for grower actions to protect the environment. Although the vegetable enterprises on farms (except dry peas and lentils) are not eligible for Government payments (other than ad hoc disaster relief), most of these growers also produce such rotational crops as wheat, corn, barley, cotton, and soybeans—crops that make these farms eligible for participation in Government commodity support programs.

While all specialized U.S. vegetable and melon farms received an average of \$5,195 in farm program payments in 2005-07, these payments represented just 5 percent of net farm income (fig. 8). Interestingly, on all other U.S. farms and ranches in the United States, Government payments averaged a similar \$5,724 per farm but represented 22 percent of net farm income (income was much lower on farms other than vegetable and melon farms). The similarities in payment levels between vegetable farms and all other U.S. farms also extend to the largest commercial farms, which tend to receive the bulk of Government payments. More than 70,000 farms received at least \$30,000 in Government payments in 2008, with most of these being large farms counting farming as their primary occupation (USDA, ERS (d)). Very large specialized vegetable and melon farms received an average of \$41,460 in farm program payments, with these payments representing just 4 percent of net farm income. Similarly, on all other very large farms and ranches in the United States, Government payments totaled \$51,382 per farm and represented 8 percent of net farm income.

Figure 8

Specialized vegetable and melon farms: Government payments per farm



Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

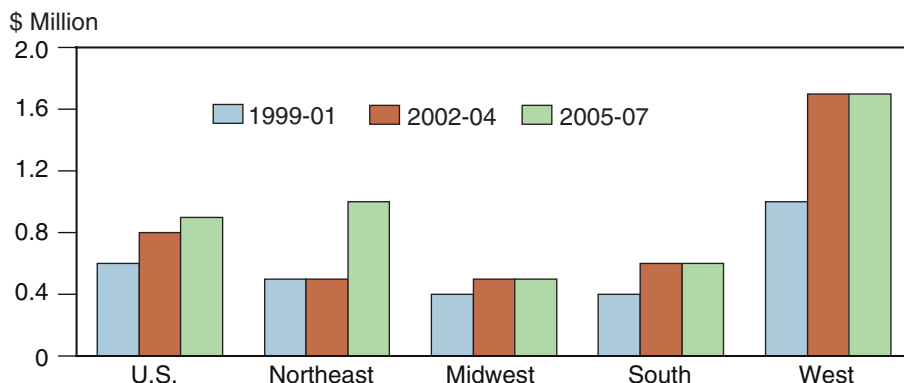
Average Net Worth Higher

The financial balance sheet for specialized vegetable and melon farms has remained favorable over the past decade, with growth in the value of farm assets exceeding that of farm debt. As a result, average net worth (farm assets minus farm debt, also known as farm equity) increased 63 percent between 1999-2001 and 2005-07 (fig. 9). Average net worth was \$5.3 million for very large vegetable and melon farms during 2005-07. Illustrating the general financial well-being across much of U.S. agriculture, the average net worth of the largest vegetable and melon farms was only 7 percent higher than that for all other large U.S. farms and ranches. Although small, these differences in net worth stemmed from the slightly higher average asset values for very large vegetable and melon farms due to the need for costly specialized equipment, large operating loan requirements, and coastal fringe locations of much of the industry (typically associated with high-value farmland). Among all regions, farm equity for vegetable and melon farms was highest in the West, followed distantly by the Northeast. Most of the asset strength in these two areas is associated with generally high land values.

During 2005-07, farm assets on all U.S. specialized vegetable and melon farms averaged about \$1 million per farm (unadjusted for inflation)—60 percent greater than during 1999-2001. Current assets (includes such items as machinery and operating capital) accounted for 12 percent of all assets, with noncurrent assets (largely land and buildings) making up the bulk of the total. The per farm value of farm business assets in the West was nearly twice the national average, reflecting larger farm sizes and the influence of high-priced coastal land values. Average farm assets were lowest in the Midwest, where land values tend to be lower than in coastal regions.

Figure 9

Specialized vegetable and melon farms: Average equity per farm



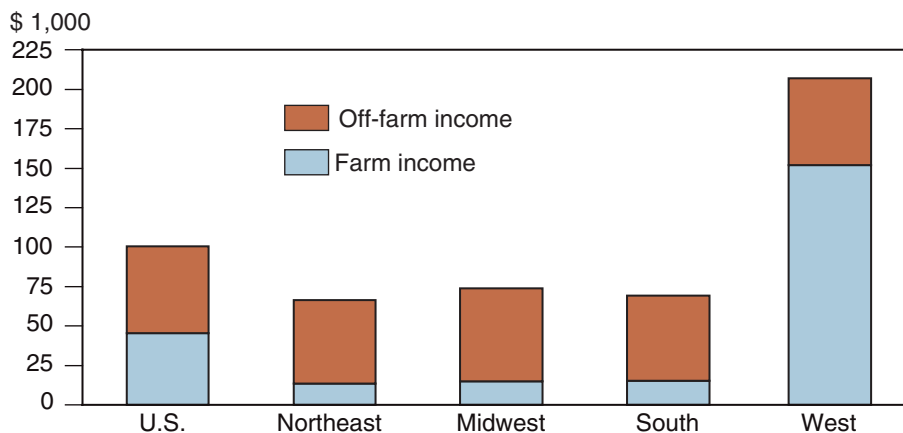
Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Off-Farm Income Important to Farm Households

The majority of U.S. farm households depend on income from both farm and off-farm sources. In terms of sector-wide financial performance, this has proved to be a strong combination. Since 1996, average annual incomes of farm households have exceeded average annual U.S. household incomes. Most of this growth was due to rising income from off-farm sources, with farm operator households receiving more income alone off the farm than the average U.S. household receives in total (USDA ERS (e)). For specialized vegetable and melon farm households, the portion of income generated directly from farming is more important to household well-being than for farm households in general. However, off-farm income remains very important. The off-farm income (unadjusted for inflation) of specialized vegetable and melon farm households averaged \$55,157 in 2005-07—up 17 percent from 1999-2001. Off-farm income accounted for 55 percent of total vegetable farm household income in 2005-07, compared with 77 percent in 1999-2001. Sources of off-farm income include off-farm wages and salaries; investment interest and dividends; Government transfer payments, such as Social Security; and other nonfarm business income.

Although off-farm income plays an important role on most farms, it is especially important for those operators running small and midsized vegetable and melon farms. Off-farm income accounted for 94 percent of household income of specialized vegetable and melon farms, with farm sales averaging \$40,000 to \$249,999 in 2005-07. For farms with less than \$40,000 in sales, in most years off-farm income was required to offset a small loss from farming operations. For vegetable farms reporting more than \$1 million in sales in 2005-07, off-farm income accounted for just 9 percent of total household income. Fueled by substantial farm income, these vegetable and melon farms enjoyed household incomes well above the national average.

Figure 10
**Specialized vegetable and melon farms:
 Average household income, 2005-07**



Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

In 2005-07, off-farm income accounted for more than half of total vegetable and melon farm household income in every census region but the West. The dollar value of off-farm income of specialized vegetable and melon farms was greatest in the Midwest. However, vegetable farms in the Northeast had both the lowest household income and off-farm income among the four regions, with off-farm income accounting for 79 percent of household income. Specialized vegetable farm households in the West relied more on farm income than the other three regions, reflecting the prevalence of large farms in the region (fig. 10).

Conclusions

Specialized vegetable and melon farms account for more than half of all farms producing vegetables in the United States and contributed nearly 90 percent of the total value of U.S. vegetable production during 2005-07. Although the 2008 farm bill provided substantial funds for research and promotion, vegetable crop enterprises within the vegetable and melon sector operate with limited support from the Federal Government, with few payments related to the production of vegetables and melons. Still, total net farm income for specialized U.S. vegetable and melon farms tripled between 1999-2001 and 2005-07. At the same time average farm equity for these operations increased 60 percent and was highest in the West and lowest in the Midwest.

Net farm income and farm equity of specialized vegetable and melon farms vary by size of farm and by region. Because of greater average farm size, a larger share of farm acres in vegetables and melons, and multiseason production in California and Arizona, farms in the West generally stood apart from those in the other three regions. Net farm income per farm in the West during 2005-07 was several times greater than that in the next highest region (the Midwest). The Midwest had the lowest equity per farm because of the lower value of land due in part to location and the heavy concentration of lower valued, machine-harvested processing vegetables.

The financial outlook for specialized vegetable and melon farms remains favorable and may have improved with the passage of the 2008 farm bill. Increased efficiency and rising market demand is expected within the sector, given several billion dollars worth of new commodity and market research projects being put in place now and over the next several years. As the fruits of these efforts begin to show up in the market, they may eventually be reflected in an improved bottom line for the vegetable and melon industry over the next decade.

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Appendix table 1

Average farm characteristics for specialized vegetable and melon farms, by region, 1999-2001

Item	Census region				
	Northeast	Midwest	South	West	U.S.
Number of farms	5,766	7,438	12,139	7,351	32,694
Operated acres (<i>acres per farm</i>)	133	210	158	492	240
Harvested acres	83	153	74	423	172
Harvested vegetable acres	49	65	44	241	94
Share in vegetables (<i>percent</i>)	59.0	42.5	59.5	57.0	54.7
Gross value of production (<i>\$ per farm</i>)	101,563	121,361	121,798	894,946	291,963
Vegetables value of production	88,837	104,935	109,317	783,030	256,184
Selected farm expenses (<i>\$ per farm</i>)					
Total variable cash expenses	66,741	75,217	92,556	572,476	191,963
Fertilizer and chemicals	14,139	19,965	18,495	109,902	38,613
Labor	18,860	24,020	40,661	226,602	74,837
Total fixed cash expenses	18,749	20,029	13,213	114,750	38,569
Real estate and property taxes	5,102	2,050	1,325	8,918	3,864
Interest	d	3,991	3,678	22,686	8,557
Total cash expenses	85,490	95,246	105,769	687,226	230,532
Farm balance sheet (<i>\$ per farm</i>)					
Total farm assets	583,492	410,866	426,627	1,228,020	630,890
Current assets	48,165	57,001	32,025	314,579	104,083
Noncurrent assets	535,327	353,865	394,602	913,441	526,808
Total farm liabilities	50,198	49,982	31,073	211,217	79,251
Current liabilities	14,410	21,185	12,353	111,306	36,974
Noncurrent liabilities	35,788	28,797	18,720	99,911	42,277
Farm equity	533,294	360,884	395,554	1,016,803	551,639
Farm income measures (<i>\$ per farm</i>)					
Gross cash farm income	98,306	122,434	124,486	776,883	266,086
Government payments	2,712	7,941	3,534	15,626	7,110
Net cash farm income	d	27,188	18,718	89,657	35,554
Net farm income	17,983	23,660	16,254	68,853	30,070
Selected financial measures (<i>percent</i>)					
Debt to asset ratio	8.60	12.17	7.28	17.20	12.56
Debt to equity ratio	9.41	13.85	7.86	20.77	14.37
Return on assets	-0.33	-0.46	-0.63	2.36	0.75
Operating profit margin	-1.77	-1.45	-2.06	3.66	1.72
Debt-coverage ratio	3.69	3.59	4.33	2.74	3.17
Operating expense ratio	86.96	77.79	84.96	88.46	86.64
Current ratio	3.34	2.69	2.59	2.83	2.82
Debt servicing ratio	7.19	6.61	3.86	4.56	4.82
Solvency positions (<i>percent of farms</i>)					
Favorable	69.0	62.8	79.0	61.4	69.6
Marginal income	28.3	21.9	14.2	29.3	21.8
Marginal solvency	d	3.1	2.4	4.4	2.9
Vulnerable	d	12.3	4.4	4.9	5.7
Primary occupation-farming (<i>percent of farms</i>)	69.0	62.8	79.0	61.4	69.6
Household income (<i>\$ per household</i>)	50,183	54,673	51,514	92,026	60,726
Off-farm income	47,049	42,446	42,497	59,778	47,022

d = Insufficient data for disclosure or standard error is greater than 75 percent of the estimates.

Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Appendix table 2

Average farm characteristics for specialized vegetable and melon farms, by region, 2002-04

Item	Census region				U.S.
	Northeast	Midwest	South	West	
Number of farms	6,316	8,905	8,129	5,295	28,646
Operated acres (<i>acres per farm</i>)	111	204	176	704	268
Harvested acres	72	150	111	620	208
Harvested vegetable acres	43	71	60	355	114
Share in vegetables (<i>percent</i>)	59.7	47.3	54.1	57.3	54.8
Gross value of production (<i>\$ per farm</i>)	97,275	180,384	195,664	1,493,726	409,173
Vegetables value of production	88,728	158,557	178,313	1,313,589	362,280
Selected farm expenses (<i>\$ per farm</i>)					
Total variable cash expenses	75,143	86,961	132,814	845,004	237,496
Fertilizer and chemicals	12,733	21,390	26,473	161,839	46,886
Labor	24,688	26,466	58,398	335,971	92,349
Total fixed cash expenses	12,895	21,394	21,569	165,294	46,170
Real estate and property taxes	3,587	2,935	2,118	11,397	4,411
Interest	3,047	4,531	7,836	26,495	9,202
Total cash expenses	88,038	108,355	154,383	1,010,297	283,666
Farm balance sheet (<i>\$ per farm</i>)					
Total farm assets	633,389	609,657	641,469	2,012,881	883,310
Current assets	43,973	48,277	25,191	304,036	88,054
Noncurrent assets	589,416	561,381	616,278	1,708,846	795,256
Total farm liabilities	87,821	69,369	55,406	346,408	120,687
Current liabilities	19,436	21,138	17,517	160,119	45,427
Noncurrent liabilities	68,384	48,231	37,889	186,289	75,261
Farm equity	545,568	540,288	586,062	1,666,473	762,623
Farm income measures (<i>\$ per farm</i>)					
Gross cash farm income	102,420	135,976	198,093	1,354,818	371,514
Government payments	1,444	3,146	3,517	13,526	4,795
Net cash farm income	14,382	27,621	43,710	344,521	87,848
Net farm income	18,730	28,832	43,238	296,257	80,128
Selected financial measures (<i>percent</i>)					
Debt to asset ratio	13.87	11.38	8.64	17.21	13.66
Debt to equity ratio	16.10	12.84	9.45	20.79	15.83
Return on assets	-2.24	d	3.43	11.38	5.11
Operating profit margin	-12.30	d	10.67	16.88	11.85
Debt-coverage ratio	2.20	3.32	6.54	6.72	5.40
Operating expense ratio	85.96	79.69	77.93	74.57	76.35
Current ratio	2.26	2.28	1.44	1.90	1.94
Debt servicing ratio	10.77	7.81	4.06	3.65	4.62
Solvency positions (<i>percent of farms</i>)					
Favorable	44.4	73.9	61.9	63.1	62.0
Marginal income	36.8	17.1	26.3	24.4	25.4
Marginal solvency	17.3	1.4	4.5	8.2	7.1
Vulnerable	1.5	7.6	7.3	4.2	5.5
Primary occupation-farming (<i>percent of farms</i>)	76.8	37.5	48.6	74.6	56.2
Household income (<i>\$ per household</i>)	49,088	57,785	62,814	220,702	85,890
Off-farm income	46,928	46,188	40,448	45,957	44,674

d = Insufficient data for disclosure or standard error is greater than 75 percent of the estimates.

Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Appendix table 3

Average farm characteristics for specialized vegetable and melon farms, by region, 2005-07

Item	Census region				U.S.
	Northeast	Midwest	South	West	
Number of farms	5,681	7,703	10,034	7,031	30,449
Operated acres (<i>acres per farm</i>)	171	155	174	545	254
Harvested acres	87	122	101	515	199
Harvested vegetable acres	42	61	53	279	105
Share in vegetables (<i>percent</i>)	47.9	49.9	52.9	54.1	52.8
Gross value of production (<i>\$ per farm</i>)	129,034	176,842	183,530	1,335,198	437,610
Vegetables value of production	107,304	157,203	164,122	1,154,188	380,394
Selected farm expenses (<i>\$ per farm</i>)					
Total variable cash expenses	92,479	88,390	136,644	704,767	247,386
Fertilizer and chemicals	15,901	20,916	31,371	171,676	58,239
Labor	33,645	28,822	51,724	231,225	84,007
Total fixed cash expenses	16,875	21,921	20,259	165,926	53,685
Real estate and property taxes	5,373	2,727	1,842	10,716	4,774
Interest	3,965	4,341	5,249	22,922	8,861
Total cash expenses	109,354	110,310	156,903	870,694	301,071
Farm balance sheet (<i>\$ per farm</i>)					
Total farm assets	1,021,639	589,490	684,060	1,958,265	1,017,357
Current assets	52,641	70,560	48,292	339,657	122,018
Noncurrent assets	968,998	518,930	635,768	1,618,608	895,340
Total farm liabilities	65,212	61,478	69,550	297,751	119,394
Current liabilities	15,967	19,258	30,623	156,044	53,975
Noncurrent liabilities	49,245	42,220	38,927	141,707	65,419
Farm equity	956,427	528,011	614,509	1,660,514	897,963
Farm income measures (<i>\$ per farm</i>)					
Gross cash farm income	136,756	150,539	185,249	1,196,563	400,950
Government payments	3,700	2,859	4,480	9,983	5,195
Net cash farm income	27,402	40,229	28,346	325,869	99,879
Net farm income	27,714	45,945	29,514	326,766	101,975
Selected financial measures (<i>percent</i>)					
Debt to asset ratio	6.38	10.43	10.17	15.2	11.74
Debt to equity ratio	6.82	11.64	11.32	17.93	13.30
Return on assets	d	3.39	1.38	14.86	7.22
Operating profit margin	-6.93	12.12	4.88	23.52	17.53
Debt-coverage ratio	3.13	4.89	3.88	7.84	6.22
Operating expense ratio	79.96	73.28	84.70	72.77	75.09
Current ratio	3.30	3.66	1.58	2.18	2.26
Debt servicing ratio	7.84	7.07	5.11	3.81	4.57
Solvency positions (<i>percent of farms</i>)					
Favorable	67.7	83.7	64.5	74.6	72.3
Marginal income	28.7	9.9	26.0	16.8	20.3
Marginal solvency	d	d	5.0	4.2	4.4
Vulnerable	d	d	4.4	4.4	3.0
Primary occupation-farming (<i>percent of farms</i>)	76.5	36.7	54.7	78.4	59.7
Household income (<i>\$ per household</i>)	66,306	73,960	69,187	206,879	100,561
Off-farm income	52,585	58,832	53,867	54,999	55,157

d = Insufficient data for disclosure or standard error is greater than 75 percent of the estimates.

Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Appendix table 4

Average farm characteristics for specialized vegetable and melon farms, by region, 1999-2007

Item	Census region				U.S.
	Northeast	Midwest	South	West	
Number of farms	5,921	8,015	10,101	6,559	30,596
Operated acres (<i>acres per farm</i>)	137	190	168	568	254
Harvested acres	80	142	93	509	192
Harvested vegetable acres	45	66	51	285	104
Share in vegetables (<i>percent</i>)	56.3	46.5	55.8	56.0	54.2
Gross value of production (<i>\$ per farm</i>)	108,824	160,992	162,056	1,213,394	376,857
Vegetables value of production	94,704	141,536	145,974	1,058,430	330,499
Selected farm expenses (<i>\$ per farm</i>)					
Total variable cash expenses	77,960	83,786	117,955	693,086	224,558
Fertilizer and chemicals	14,203	20,797	24,899	145,952	47,705
Labor	25,661	26,464	49,082	257,686	83,344
Total fixed cash expenses	16,068	21,140	17,788	146,638	45,956
Real estate and property taxes	4,650	2,595	1,709	10,227	4,336
Interest	4,528	4,303	5,313	23,795	8,859
Total cash expenses	94,028	104,926	135,743	839,724	270,514
Farm balance sheet (<i>\$ per farm</i>)					
Total farm assets	741,364	541,704	569,507	1,700,165	837,869
Current assets	48,106	58,113	35,578	320,703	105,030
Noncurrent assets	693,258	483,590	533,929	1,379,463	732,839
Total farm liabilities	68,378	60,844	50,342	278,518	105,499
Current liabilities	16,695	20,551	19,788	140,428	45,252
Noncurrent liabilities	51,682	40,294	30,554	138,090	60,248
Farm equity	672,986	480,859	519,165	1,421,647	732,369
Farm income measures (<i>\$ per farm</i>)					
Gross cash farm income	112,066	136,452	164,353	1,082,371	343,726
Government payments	2,577	4,537	3,842	13,044	5,752
Net cash farm income	18,038	31,526	28,611	242,647	73,213
Net farm income	21,361	32,714	27,884	222,207	69,545
Selected financial measures (<i>percent</i>)					
Debt to asset ratio	9.22	11.23	8.84	16.38	12.59
Debt to equity ratio	10.16	12.65	9.70	19.59	14.41
Return on assets	-1.21	1.01	1.39	10.38	4.79
Operating profit margin	-7.23	3.69	4.63	15.99	11.27
Debt-coverage ratio	2.88	3.93	4.80	5.92	5.08
Operating expense ratio	83.90	76.90	82.59	77.58	78.70
Current ratio	2.88	2.83	1.80	2.28	2.32
Debt servicing ratio	8.61	7.21	4.39	3.96	4.66
Solvency positions (<i>percent of farms</i>)					
Favorable	59.9	73.6	69.6	66.6	68.1
Marginal income	31.5	16.3	21.3	23.5	22.4
Marginal solvency	d	2.9	3.8	5.4	4.7
Vulnerable	d	7.2	5.2	4.5	4.7
Primary occupation-farming (<i>percent of farms</i>)	65.0	38.9	42.0	77.3	53.2
Household income (<i>\$ per household</i>)	54,910	61,985	60,379	167,512	81,744
Off-farm income	48,763	49,065	45,710	54,383	48,982

d = Insufficient data for disclosure or standard error is greater than 75 percent of the estimates.

Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Average farm characteristics for specialized vegetable and melon farms, by farm size, 1999-2001

Item	Value of production			
	Small Less than \$40,000	Medium \$40,000- \$249,999	Large \$250,000- \$999,999	Very large \$1,000,000 or more
Number of farms	22,816	4,882	3,130	1,866
Operated acres (<i>acres per farm</i>)	50	192	676	1,969
Harvested acres	18	112	460	1,733
Harvested vegetable acres	7	65	212	1,028
Share in vegetables (<i>percent</i>)	38.9	58.0	46.1	59.3
Gross value of production (<i>\$ per farm</i>)	6,545	109,974	553,492	3,820,112
Vegetables value of production	5,757	95,516	469,104	3,382,154
Selected farm expenses (<i>\$ per farm</i>)				
Total variable cash expenses	8,931	67,444	352,489	2,486,993
Fertilizer and chemicals	1,933	16,242	78,630	478,622
Labor	1,332	20,142	130,003	1,024,392
Total fixed cash expenses	4,105	14,416	70,277	470,077
Real estate and property taxes	1,307	2,893	5,343	35,184
Interest	d	3,853	20,938	86,954
Total cash expenses	13,036	81,859	422,766	2,957,070
Farm balance sheet (<i>\$ per farm</i>)				
Total farm assets	253,725	481,877	1,255,614	4,585,467
Current assets	5,345	44,091	221,098	1,272,315
Noncurrent assets	248,380	437,786	1,034,516	3,313,152
Total farm liabilities	12,823	40,287	195,566	798,491
Current liabilities	3,457	d	96,385	402,115
Noncurrent liabilities	9,366	24,294	99,181	396,377
Farm equity	240,902	441,590	1,060,048	3,786,975
Farm income measures (<i>\$ per farm</i>)				
Gross cash farm income	9,857	121,870	535,176	3,325,718
Government payments	d	4,957	24,373	59,048
Net cash farm income	-3,179	40,011	112,410	368,648
Net farm income	1,143	35,014	82,638	282,712
Selected financial measures (<i>percent</i>)				
Debt to asset ratio	5.05	8.36	15.58	17.41
Debt to equity ratio	5.32	9.12	18.45	21.09
Return on assets	-5.45	0.68	3.54	3.69
Operating profit margin	-89.90	2.61	8.11	4.99
Debt-coverage ratio	1.76	7.46	4.09	2.68
Operating expense ratio	132.25	67.17	79.00	88.92
Current ratio	1.55	2.76	2.29	3.16
Debt servicing ratio	17.06	4.40	4.98	4.38
Solvency positions (<i>percent of farms</i>)				
Favorable	68.2	80.8	71.2	54.8
Marginal income	24.4	13.6	12.7	27.5
Marginal solvency	d	2.4	10.9	10.6
Vulnerable	d	3.2	5.3	7.1
Primary occupation-farming (<i>percent of farms</i>)	25.8	81.8	96.9	88.7
Household income (<i>\$ per household</i>)	46,868	62,263	91,523	200,257
Off-farm income	50,919	35,157	31,970	55,060

d = Insufficient data for disclosure or standard error is greater than 75 percent of the estimates.

Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Average farm characteristics for specialized vegetable and melon farms, by farm size, 2002-04

Item	Value of production			
	Small Less than \$40,000	Medium \$40,000- \$249,999	Large \$250,000- \$999,999	Very large \$1,000,000 or more
Number of farms	18,658	5,097	2,657	2,234
Operated acres (<i>acres per farm</i>)	44	192	623	1,888
Harvested acres	15	103	508	1,707
Harvested vegetable acres	9	54	228	992
Share in vegetables (<i>percent</i>)	60.0	52.4	44.9	58.1
Gross value of production (<i>\$ per farm</i>)	7,661	98,370	535,080	4,322,526
Vegetables value of production	6,685	84,487	442,306	3,871,336
Selected farm expenses (<i>\$ per farm</i>)				
Total variable cash expenses	9,603	69,002	369,051	2,369,113
Fertilizer and chemicals	1,090	12,876	84,070	462,801
Labor	1,118	21,288	127,564	974,686
Total fixed cash expenses	4,144	15,958	76,817	429,707
Real estate and property taxes	1,585	2,592	6,568	29,603
Interest	1,570	4,908	14,132	76,887
Total cash expenses	13,746	84,960	445,868	2,798,819
Farm balance sheet (<i>\$ per farm</i>)				
Total farm assets	341,583	851,041	1,456,158	4,800,582
Current assets	9,034	44,543	191,519	724,327
Noncurrent assets	332,549	806,498	1,264,638	4,076,255
Total farm liabilities	34,270	60,869	191,407	894,913
Current liabilities	4,724	16,918	88,866	398,800
Noncurrent liabilities	29,546	43,951	102,541	496,113
Farm equity	307,313	790,172	1,264,751	3,905,669
Farm income measures (<i>\$ per farm</i>)				
Gross cash farm income	9,930	105,452	579,143	3,752,019
Government payments	305	2,401	16,742	33,542
Net cash farm income	-3,816	20,491	133,275	953,199
Net farm income	d	17,125	107,812	837,187
Selected financial measures (<i>Percent</i>)				
Debt to asset ratio	10.03	7.15	13.14	18.64
Debt to equity ratio	11.15	7.70	15.13	22.91
Return on assets	-4.68	-2.52	3.61	14.56
Operating profit margin	-87.80	-19.12	8.89	18.51
Debt-coverage ratio	1.38	2.74	4.87	6.86
Operating expense ratio	138.43	80.57	76.99	74.60
Current ratio	1.91	2.63	2.16	1.82
Debt servicing ratio	38.94	8.21	4.51	3.65
Solvency positions (<i>percent of farms</i>)				
Favorable	59.6	70.4	64.2	59.6
Marginal income	28.3	20.3	18.2	21.4
Marginal solvency	6.2	d	11.7	12.3
Vulnerable	5.9	d	5.9	6.8
Primary occupation-farming (<i>percent of farms</i>)	40.3	79.9	94.5	89.1
Household income (<i>\$ per household</i>)	44,564	46,096	131,586	522,173
Off-farm income	49,021	31,501	30,558	53,457

d = Insufficient data for disclosure or standard error is greater than 75 percent of the estimates.

Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Average farm characteristics for specialized vegetable and melon farms, by farm size, 2005-07

Item	Value of production			
	Small Less than \$40,000	Medium \$40,000- \$249,999	Large \$250,000- \$999,999	Very large \$1,000,000 or more
Number of farms	20,552	5,503	1,926	2,467
Operated acres (<i>acres per farm</i>)	43	158	572	1,978
Harvested acres	13	83	375	1,878
Harvested vegetable acres	6	43	164	1,027
Share in vegetables (<i>percent</i>)	46.2	52.8	43.7	54.7
Gross value of production (<i>\$ per farm</i>)	7,514	112,686	515,592	4,684,046
Vegetables value of production	6,281	94,972	418,413	4,103,606
Selected farm expenses (<i>\$ per farm</i>)				
Total variable cash expenses	7,758	98,326	355,976	2,491,117
Fertilizer and chemicals	1,115	16,892	83,746	606,373
Labor	1,162	32,247	125,684	856,998
Total fixed cash expenses	3,501	15,393	64,218	548,895
Real estate and property taxes	1,543	3,328	6,237	33,769
Interest	1,170	3,436	15,204	80,064
Total cash expenses	11,259	113,719	420,194	3,040,012
Farm balance sheet (<i>\$ per farm</i>)				
Total farm assets	315,202	963,871	1,806,580	6,369,264
Current assets	11,821	44,442	176,734	1,170,233
Noncurrent assets	303,381	919,428	1,629,846	5,199,031
Total farm liabilities	15,525	63,015	184,960	1,059,161
Current liabilities	2,536	14,161	70,121	558,650
Noncurrent liabilities	12,989	48,854	114,839	500,512
Farm equity	299,677	900,855	1,621,620	5,310,102
Farm income measures (<i>\$ per farm</i>)				
Gross cash farm income	12,326	121,638	541,470	4,151,376
Government payments	531	3,136	14,384	41,460
Net cash farm income	d	d	121,276	1,111,364
Net farm income	7,407	d	109,279	1,106,220
Selected financial measures (<i>percent</i>)				
Debt to asset ratio	4.93	6.54	10.24	16.63
Debt to equity ratio	5.18	7.00	11.41	19.95
Return on assets	-4.88	-3.46	3.60	16.61
Operating profit margin	-77.66	-26.30	11.74	24.68
Debt-coverage ratio	4.29	d	4.19	7.34
Operating expense ratio	91.34	93.49	77.60	73.23
Current ratio	4.66	3.14	2.52	2.09
Debt servicing ratio	17.03	7.09	5.71	3.99
Solvency positions (<i>percent of farms</i>)				
Favorable	74.6	71.4	65.8	60.4
Marginal income	19.7	22.6	18.5	21.8
Marginal solvency	d	d	12.0	11.1
Vulnerable	d	d	3.7	6.7
Primary occupation-farming (<i>percent of farms</i>)	42.0	95.0	98.3	98.3
Household income (<i>\$ per household</i>)	61,873	42,321	146,496	616,200
Off-farm income	60,906	39,719	35,107	55,479

d = Insufficient data for disclosure or standard error is greater than 75 percent of the estimates.

Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.

Average farm characteristics for specialized vegetable and melon farms, by farm size, 1999-2007

Item	Value of production			
	Small Less than \$40,000	Medium \$40,000- \$249,999	Large \$250,000- \$999,999	Very large \$1,000,000 or more
Number of farms	20,675	5,161	2,571	2,189
Operated acres (<i>acres per farm</i>)	46	180	632	1,945
Harvested acres	15	99	455	1,779
Harvested vegetable acres	7	54	205	1,015
Share in vegetables (<i>percent</i>)	46.7	54.5	45.1	57.1
Gross value of production (<i>\$ per farm</i>)	7,202	107,118	537,684	4,315,624
Vegetables value of production	6,210	91,692	447,213	3,819,629
Selected farm expenses (<i>\$ per farm</i>)				
Total variable cash expenses	8,744	78,934	359,065	2,448,445
Fertilizer and chemicals	1,408	15,365	81,782	521,242
Labor	1,211	24,822	128,084	944,588
Total fixed cash expenses	3,916	15,271	71,017	485,960
Real estate and property taxes	1,469	2,949	5,988	32,754
Interest	1,395	4,052	17,161	80,941
Total cash expenses	12,661	94,205	430,082	2,934,406
Farm balance sheet (<i>\$ per farm</i>)				
Total farm assets	300,523	774,734	1,462,298	5,328,884
Current assets	8,601	44,365	199,829	1,047,560
Noncurrent assets	291,923	730,370	1,262,469	4,281,325
Total farm liabilities	20,170	55,142	191,485	929,234
Current liabilities	3,533	15,646	87,236	459,804
Noncurrent liabilities	16,637	39,496	104,249	469,430
Farm equity	280,354	719,593	1,270,813	4,399,651
Farm income measures (<i>\$ per farm</i>)				
Gross cash farm income	10,697	116,382	551,894	3,780,959
Government payments	620	3,468	19,249	43,764
Net cash farm income	-1,964	22,178	121,812	846,553
Net farm income	3,707	17,513	97,964	780,743
Selected financial measures (<i>percent</i>)				
Debt to asset ratio	6.71	7.12	13.09	17.44
Debt to equity ratio	7.19	7.66	15.07	21.12
Return on assets	-4.99	-2.31	3.58	12.82
Operating profit margin	-84.71	-14.71	9.28	17.70
Debt-coverage ratio	2.29	3.04	4.37	5.90
Operating expense ratio	118.36	80.94	77.93	77.61
Current ratio	2.43	2.84	2.29	2.28
Debt servicing ratio	23.16	6.54	4.99	3.97
Solvency positions (<i>percent of farms</i>)				
Favorable	67.7	74.0	67.4	58.5
Marginal income	24.0	19.0	16.0	23.3
Marginal solvency	3.6	3.0	11.5	11.3
Vulnerable	4.6	4.0	5.1	6.8
Primary occupation-farming (<i>percent of farms</i>)	35.5	85.8	96.5	92.4
Household income (<i>\$ per household</i>)	51,147	50,024	119,386	464,038
Off-farm income	53,657	35,600	32,283	54,643

d = Insufficient data for disclosure or standard error is greater than 75 percent of the estimates.

Source: Prepared by USDA, ERS using data from USDA's Agricultural Resource Management Survey.