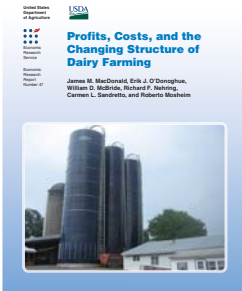


# ERS *Report Summary*

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*This is a summary  
of an ERS report.*

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## Profits, Costs, and the Changing Structure of Dairy Farming

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Dairy farming in the United States is undergoing dramatic changes, driven by both supply and demand factors. Consumption is shifting from fluid milk, generally produced for local markets, toward manufactured products, such as cheese, and dairy-based ingredients produced for national and global markets. Innovations in breeding and feeding systems have led to large increases in the amount of milk that a cow produces. Milk production is shifting toward Western States like California, Idaho, and New Mexico, and to much larger farms. The number of dairy farms with fewer than 200 cows is shrinking, while the number of very large operations, with 2,000 or more cows doubled between 2000 and 2006.

### *What Is the Issue?*

Large dairy farms first emerged in the Western States, but are now appearing in traditional dairy States as well. This report documents shifts in the location and size of dairy farms, and also takes a look at what those changes may mean. If the shift in farm size reflects economies of scale in dairy production—that is, lower costs on larger farms—then increasing farm size also enables milk to be produced with fewer resources, thereby reducing prices to consumers. However, the shifts also concentrate animal wastes from manure onto a much smaller land base and may exacerbate pollution associated with concentrated livestock production.

### *What Did the Study Find?*

Large dairy enterprises generate returns that, on average, well exceed their full costs. At the same time, smaller dairy farms mostly incur economic losses—the value of their production does not exceed full costs, including the costs of capital and time committed by their owners. Large farms incur much lower costs, on average, than smaller farms, and these advantages accrue across a wide range of sizes. Costs per hundredweight of milk produced fall by nearly half as herd size increases from fewer than 50 head to 500 head, and continue to fall, but less sharply, at even larger herd sizes.

Dairy investment decisions are consistent with the financial evidence. Farms with fewer than 200 cows accounted for over two-thirds of the nationwide inventory of cows in 1992. By 2006, their share of the nationwide inventory had dropped to 38 percent. Meanwhile, farms with at least 1,000 head of dairy cows are growing more prevalent. They accounted for less than 10 percent of inventory in 1992 but more than a third by 2006. Structural shifts are evident among the largest farms, too. During the 1990s, farms with 1,000-3,000 head were adding the most capacity, but capacity additions have since shifted to even larger farms, with 3,000-10,000 head.

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Some small dairy farms are profitable, and others continue to earn enough to remain in operation. As a result, structural change is likely for the foreseeable future, with a continuing decline, rather than a sudden disappearance, of small and midsize dairy operations. The ongoing structural changes will continue to place downward pressure on milk prices.

Excess nutrient applications, which arise from animal manure and can cause water and air pollution, appear to be intensified on larger operations. But their production cost advantages still outweigh the likely additional costs of manure treatment and removal, and it is unlikely that manure management regulations will reverse the ongoing patterns of structural change.

### *How Was the Study Conducted?*

Confidential farm-level records from successive censuses of agriculture (1992, 1997, and 2002) were used to depict changes in the location and size distribution of dairy farms. More aggregated public information on the size distribution of dairy farms is drawn from annual dairy surveys carried out by USDA's National Agricultural Statistics Service (NASS).

Additional farm-level data come from the annual Agricultural Resource Management Survey (ARMS), administered jointly by the Economic Research Service (ERS) and NASS. Dairy farms in major milk-production States were targeted with commodity-specific ARMS versions covering operations during 2000 and 2005. These surveys provide detailed information for analyses of costs, manure management practices, and operator expectations for survival. Data from successive years of version 1 of the ARMS are used to develop measures of potential excess nutrient production on dairy operations.

This study focuses on conventional dairy production, and does not assess costs and farm sizes among organic dairy operations, a rapidly growing but still small segment of the industry. The 2005 ARMS dairy version contains comprehensive information on a sample of organic producers, and other research projects are analyzing that data.