

Invited review: Sustainability of the US dairy industry

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ABSTRACT

The US dairy industry has realized tremendous improvements in efficiencies and milk production since the 1940s. During this time, farm and total cow numbers have decreased and average herd size has increased. This intensification, combined with the shift to a largely urban public, has resulted in increased scrutiny of the dairy industry by social and environmental movements and increased concern regarding the dairy industry's sustainability. In response to these concerns, a group of scientists specializing in animal welfare, nutrient management, greenhouse gas emissions, animal science, agronomy, agricultural engineering, microbiology, and economics undertook a critical review of the US dairy industry. Although the US dairy system was identified as having significant strengths, the consensus was that the current structure of the industry lacks the resilience to adapt to changing social and environmental landscapes. We identified 5 major factors affecting the sustainability of the US dairy industry: climate change, rapid scientific and technological innovation, globalization, integration of societal values, and multidisciplinary research initiatives. Specific challenges include the westward migration of milk production in the United States (which is at odds with projected reductions in precipitation and associated limitations in water availability for cattle and crops), and the growing divide between industry practices and public perceptions, resulting in less public trust. Addressing these issues will require improved alignment between industry practices and societal values, based upon leadership from within the industry and sustained engagement with other interested participants, including researchers, consumers, and the general public.

Key words

environment; social; economic; public attitude