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Sustainability indicators in the dairy industry

Industrial milk production results in waste products and pollutants including greenhouse gas emissions, product packaging, wastewater and effluents. Sustainability indicators are poorly defined for the industry, making efforts to measure and monitor sustainability challenging. Alexandre André Feil, from Universidade do Vale do Taquari, Brazil, and colleagues conducted a systematic review to identify and assess the characteristics of sustainability indicators used in the dairy sector to date.

The literature search covered a 50-year period of publication, from 1969 to the present. Although 130 publications containing the phrases 'sustainability indicator' and 'dairy industry' were included in the review, the authors found that only about 5% of these studies directly addressed sustainability indicators. The 'triple bottom line' of sustainability — environmental, social and economic factors — were used by Feil and colleagues to assess indicators used in the literature. The environmental indicators that emerged included ozone depletion, water eutrophication, energy consumption, ecotoxicity, abiotic depletion, global warming, water acidification, photochemical oxidation, human toxicity and water consumption. Social indicators included product delivery capacity, quality of raw materials and product, traceability systems, workers' health and safety, noise pollution and traffic accidents. Among economic indicators were profit margin, participation in milk processing, costs of production, storage and distribution. Feil and colleagues note that the frequency of these indicators and their composite assessment in the literature to date is low, as is literature considering the triple bottom line. But, the theme of sustainability is, they note, incipient in the dairy industry.

Establishing a holistic approach to sustainability in the dairy industry is crucial. In this systematic review and analysis, Feil and colleagues also note the importance of tailoring sustainability indicators to regional issues — a strategy that will be important as emerging economies are set to increase their dairy production in the coming decades.

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