

A multicriteria approach for measuring the sustainability of different poultry production systems

- Cesare Castellini^a,
- Antonio Boggia^b,
- Carla Cortina^a,
- Alessandro Dal Bosco^{a, *},
- Luisa Paolotti^b,
- Emanuele Novelli^c,
- Cecilia Mugnai^a
- ^a Dept. of Applied Biology, University of Perugia. Borgo XX Giugno, 74, Perugia 06121 Italy
- ^b Dept. of Economics and Appraisal, University of Perugia. Borgo XX Giugno 74, Perugia 06121 Italy
- ^c Dept. for Food and Resource Economics, University of Bonn, Meckenheimer Allee 174 D-53115 Bonn, Germany
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Abstract

This study aimed to analyze the sustainability of different poultry production systems and was intended as an integrated systems approach to address human food needs, environmental preservation, economic feasibility and quality of life. The sustainability of the following three poultry production systems was compared: conventional, organic and organic-plus (this category is comprised of more restrictive requirements to improve animal welfare and meat quality). A bio-economic model combining on-farm data recording with a multi-criteria decision analysis (MCDA) was assessed. To make a general sustainability evaluation, the following four dimensions were considered: economic, social, environmental and quality. The majority of the data was collected directly on the farms, and the environmental indicators were estimated with life cycle assessment (LCA), ecological footprints and emergy analysis. To develop the MCDA, six indicators for each dimension (economic, social, qualitative and environmental) were selected. The analyzed farming systems showed different results based on the stakeholder being considered (scientists, consumers and producers). The OP system showed the best performance when economic, social and environmental dimensions were integrated following the scientist and consumer stakeholders criteria.

Highlights

► We analyzed the sustainability of different poultry production systems. ► Three poultry systems were compared: conventional, organic and organic-plus. ► Farming systems showed different results based on the stakeholder being considered. ► The organic-plus system was the worst only based on producer stakeholders criteria.

Keywords

- bio-economic model;
 - multicriteria;
 - sustainability evaluation;
 - poultry system production
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