Modeling the Relationship Between Soil Quality, Environmental Protection, And Economics for Poultry Waste Management Decisions. (S06-andrews173454-Poster)

Authors:

- S.S.Andrews* - *USDA-ARS, Ames, IA*
- L.Lohr - *University of Georga*
- M.L.Cabrera - *University of Georgia*

Abstract:

Environmental protection, economic viability and social acceptance are the multiple criteria necessary for sustainable decision-making. Animal waste management decisions are particularly vexing in that different stakeholders often hold conflicting values. An existing bioeconomic decision model for poultry waste management compared litter use systems on the basis of multiple goals for maintaining environmental quality, enhancing soil quality, maximizing waste recycling, and maximizing net revenues. The four alternatives examined were composted and fresh poultry litter applied at rates either to meet crop N needs or crop P needs. We explored the sensitivity of the model to shifts in input costs based increased transport distances due to nutrient overloading in local counties and water quality risk. We also re-examined the decision model outcomes, which were based on stakeholder preferences, using another published sustainability index method to rank the management alternatives. The results indicate the most sustainable litter management alternative in terms of soil and water quality, economic return, and social acceptability in highly spatially concentrated industry.

Corresponding Author Information:

Susan Andrews
USDA-NRCS Soil Quality Institute
2150 Pammel Dr.
Ames, IA 50011

phone: 515 294-9762
fax: 515 294-8125
e-mail: andrews@nstl.gov

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