The Healthy Farm Index Biodiversity Calculator

John Quinn[1] and Jessica Shade[2]

Introduction

The concept of healthy farms brings to mind fertile soils, clean water, and abundant wildlife. These amenities or ecosystem services were at one time taken for granted, but are now increasingly in the news and scientific literature, as we recognize that many are degraded. Global agricultural intensification, with a focus on maximum production, has resulted in decline of many ecosystem services. To address this decline, this research program has designed a Healthy Farm Index (HFI) that seeks to measure and optimize multiple ecosystem services on organic farms, communicate their value, and ensure that ecosystem services remain in the decision-making process of farmers, agency personnel, and other stakeholders. The HFI builds on past and current research efforts, an interdisciplinary organic working group, and co-development with organic producers. The tool encompasses the multi-functional nature of sustainable farm systems and reflects a vision of sustainable farming.

Methods

Agricultural systems are typically managed to maximize the provision of food and fiber. The multiple goals of farmers and society, however, include food production, ecological and environmental health, and a high quality of life now and in the future. To diversify management goals, the Healthy Farm Index incorporates multiple outputs from a farm system. The values of these outputs are reflected in groups of indicators within ecological, environmental, and socio-economic categories using measures of farm profitability, biological diversity, and ecosystem services to and from agroecosystems. Research, feedback from farmer advisory groups, and evidence of the benefits of a practice were used to set target values for each indicator. The structure of the index allows for the integration of future components as research and shared goals evolve.

This workshop will detail the use of the HFI by organic farmers to address management decisions on organic fields and farms, the area over which the farmer or landowner has the greatest level of control. Understanding the driving forces, tradeoffs, and relationships at field and farm scales will improve the effectiveness of whole farm management, as the HFI seeks to improve how decisions are made by providing a full range of outcomes from farm decisions; not just how yield or profit will change. Collective use of the index by many stakeholders in a region could shape decisions made at the watershed or larger scales, resulting in measurable benefits to all.

Conclusions

Although there are tradeoffs, preliminary assessment indicates that managing land cover and land use to sustain soil and water will sustain multiple ecosystem services without significant losses in total production. Ultimately, we foresee the Healthy Farm Index as a potential means to bring about payments for ecosystem services. Payments for ecosystem services benefit landowners who provide these services for the greater good with the support of society as a whole through payments or subsidies.

[1] Furman University, john.quinn@furman.edu
[2]The Organic Center, jshade@organic-center.org