



**Ohio
Smart
Agriculture**
SOLUTIONS FROM THE LAND

Ecosystem Services Work Group Interim Report March 2108

Mission: *Explore ways for placing ecosystem services at the foundation of agricultural production in Ohio, both in terms of the basis for supporting production and in terms of the benefits resulting from sustainable agricultural land management, such as green space and water quality. Develop programs and pathways to transition agricultural production to this approach, decreasing the need for inputs to production from outside of Ohio, and for widespread understanding of, and appreciation for, the ecosystem services that both support and are provided by Ohio agriculture.*

Preliminary Findings:

a) What are Ecosystem Services?

Ecosystem services are the benefits people obtain from ecosystems; they have value to producers and these public. These include provisioning, “regulating”, supporting, and cultural services that directly affect people and the supporting, services needed to maintain other services. Ecosystem services are “provided” free to humans by natural systems, but they can be diminished by human activities which may render them far less effective. Human interventions to replace these lost or damaged benefits may be necessary, but are almost always more expensive than the cost of avoiding the damage in the first place. Moreover, many of the services listed here are highly interlinked.

- b) The ecosystem services produced by well-managed operations are underappreciated and thus support mechanisms are not adequately developed;
- c) Efforts are underway to enhance the development and delivery of ecosystem services, but they



Figure 5. Ecosystem Services, based on UNEP, Millennium Ecosystems Assessment. Source: Based on WRI materials

are fragmented and immature.

- d) 19th/20th century production models are not adequate to meet the needs of the 21st century;
- e) Producers and public would benefit from greater diversity of production, producers, and production systems, as well as more diverse and developed sources of support for ecosystem services they could increasingly support;

Potential Solution Pathways:

1. Embrace a 21st century model for Ohio agriculture

- a. Less government centric; more multi-stakeholder collaboration (locally, regionally, statewide and interstate);
- b. Driven by markets that value all goods and ecosystem services delivered from the land;
- c. Embraces landscape scale planning and integrated strategies that deliver multiple solutions from the land; shuns silo management approaches;
- d. Set benchmark goals and measure progress.

2. Create and support more effective knowledge sharing platforms

- a. Farmer to farmer learning; apprenticeship programs;
- b. Align and integrate technical assistance delivery systems (public and private sector).

3. Conduct research

- a. Pathways for diversifying production to improve economic and environmental health;
- b. Climate smart production systems that improve sustainability, enhance resilience and deliver ecosystem services;
- c. Nutrient management systems that enhance productivity and improve water quality;
- d. Better ways to communicate and share knowledge of ecosystem service benefits;
- e. Urban farming as a pathway to improve nutrition and public health

4. Craft enabling policies that support ecosystem services

- a. Need mechanisms that reward producers for delivering ecosystem services;
- b. Eliminate crop insurance penalties for growing small gains and cover crops;
- c. Develop funding mechanisms and programs that improve soil health and water quality;
- d. Design supply chain programs to reward those who produce ecosystems services.

5. Invest in needed infrastructure

- a. Slaughter facilities for livestock from diversified farms;
- b. Processing facilities for new crops (e.g. malted barley);
- c. cold storage for fresh fruits and vegetables;
- d. Coops to help scale up urban agriculture and the production of edible foods.

6. Develop markets that help producers diversify their operations

- a. Markets for perennial grains;
- b. forages that enhance ecosystems services;

7. Invest in ecosystem service workforce development

- a. Offer VoAg programs in all high schools (rural and urban)
- b. Delineate skills required for 21st century farming so institutions can respond with
- c. Offer loan forgiveness in return for becoming an ag educator or farm mentor
- d. Train conservation district employees and independent crop consultants

An example pathway follows: market opportunities, created by a collaboration among economic development, government, trade associations and consumers, can create an economic pull for diversified production, which can enhance ecosystem services and provide direct benefits to the farm (regulating, supporting services), and general welfare in the landscape (provisioning, regulating, cultural services).

Ohio Smart Agriculture Ecosystem Services Solutions

