



## Organic Farming Practices Benefit the Environment

Organic agriculture is based on practices that not only protect environmental health, but also strive to improve it. By absorbing more carbon dioxide from the air and prohibiting the use of petroleum-based fertilizers, organic agriculture helps to reduce humans' carbon footprint, combat climate change, and protect the land and natural resources for future generations.



### ORGANIC PROTECTS NATURAL RESOURCES

Organic farming is a production system of cultural, biological, and mechanical practices that **foster cycling of resources, promote ecological balance, and conserve biodiversity**. Organic farmers are required to manage their operations in a manner that does not contribute to environmental contamination of crops, soil, or water. Production and management practices on organic farms must maintain or improve the natural resources of the farm, including soil, water, wetlands, woodlands, and wildlife.



### ORGANIC PROHIBITS USE OF TOXIC SYNTHETIC PESTICIDES AND FERTILIZERS

Instead of relying on synthetic pesticides and fertilizers that can deplete the soil of valuable nutrients and increase environmental degradation, organic farmers build soil and plant health using practices that incorporate organic materials like manure and compost. **Petroleum-based fertilizers are prohibited as are most synthetic pesticides**. Organic practices help keep our water supply clean of runoff from toxic and persistent chemicals.



### ORGANIC PROMOTES SOIL HEALTH AND REDUCES EROSION

Organic farmers use tillage and cultivation practices that maintain or improve soil conditions and minimize soil erosion. Using complex and diversified crop rotations, cover crops, green manure crops, and catch crops, **organic practices build soil health and biodiversity, improve soil structure, and increase nutrient availability without synthetic fertilizers**.

#### POLICY RECOMMENDATIONS:

- » Establish a commission to evaluate ecosystems services delivered by organic production, and recommend policies to reward and incentivize these ecosystem services.
- » Develop a competitive grant program for providing technical services to organic and transitioning farmers.
- » Provide market and infrastructure development grants for minor rotational crops that improve soil health.
- » Provide tax credits for landowners who have long-term leases under organic production.

## The Science Behind Organic and Soil Health

Organic standards require that farmers use practices that maintain or improve the physical, chemical, and biological condition of soil and minimize soil erosion. Many research studies have found that organic practices improve a variety of soil health components.

### ORGANIC FARMING SEQUESTERS CARBON IN THE SOIL

Many organic practices reduce greenhouse gas emissions and increase carbon sequestration in the soil. Organic farming increases soil properties that enhance long-term storage of carbon, providing a viable greenhouse gas mitigation strategy.<sup>1</sup>



**FEATURED STUDY:** The Organic Center co-authored a groundbreaking study with the National Soil Project at Northeastern University showing that organic soils combat climate change by locking away carbon, which would otherwise be in the atmosphere, in long-term reserves. The research compared over 1,000 soil samples from organic and agricultural soils as a whole to understand how organic compares to average agricultural management practices that influence components of soil organic

carbon. The study was the first to compare the amount of total sequestered soil organic carbon—found in the form of long-lived humic substances—between agricultural systems on such a wide-scale basis. The findings showed that the components that make up humic substances were respectively 150% and 44% greater in organic soils. The results also show that soils from organic farms sequester 26% more carbon. Overall, these results demonstrate that organic farms store more carbon in the soil, and keep it out of the atmosphere for longer than other farming methods.<sup>2</sup>

### ORGANIC FARMING SUPPORTS SOIL BIODIVERSITY

Since synthetic pesticides are prohibited, important organisms in the soil can thrive. Increased soil organic carbon found on organic farms provides important building blocks for beneficial micro-organisms in the soil that are vital to decomposition and nutrient cycling.<sup>3</sup>

### ORGANIC FARMING INCREASES WATER RETENTION IN THE SOIL

Organic management improves the ability of soil to store and retain water, which is critical for protecting crops against extreme weather events such as drought and flooding. It also protects water quality because less agricultural water is contaminated by runoff.<sup>4</sup>

1 Cooper J.M. *et al.* 2016. Shallow non- inversion tillage in organic farming maintains crop yields and increases soil C stocks: a meta-analysis. *Agronomy for Sustainable Development*, 36, 1–20.

2 Ghabbour E.A. *et al.* 2017. Chapter One - National Comparison of the Total and Sequestered Organic Matter Contents of Conventional and Organic Farm Soils. *Advances in Agronomy*, 146, 1–35.

3 Moebius-Clune B.N. *et al.* 2016. *Comprehensive Assessment of Soil Health – The Cornell Framework Manual*, Edition 3.0. Cornell University: Geneva, NY.

4 Lotter, D. W. 2003. *Organic Agriculture*. *Journal of Sustainable Agriculture*, 21, 59–128.