



Soil Health: Growing Profits and Resiliency

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A report entitled, [Soil Health for Nebraska Wealth](#), was issued in December 2020 by the Nebraska Healthy Soils Task Force, a group of 17 Nebraskans representing diverse backgrounds and perspectives, with a shared interest in profitable and sustainable farming. The initiative was commissioned by the passage of LB 243 in 2019.

During the past 40 years, the adoption of no-till planting methods reduced both farming costs and erosion. The Nebraska Healthy Soils Task Force, other soil health experts, and experienced practitioners believe further gains are within reach.

In its report, the Task Force describes farming practices it promotes and hopes to encourage farmers to adopt; practices its members believe will help make farming more profitable and more sustainable.

Five key principles to farming for soil health

- Minimize tillage
- Maximize plant diversity
- Integrate livestock when possible
- Maintain residue cover
- Maintain living roots

The adoption of no-till planting is now common for certain cropping systems and in certain regions of the country. However, USDA surveys show it remains somewhat rare for producers to implement these practices together and fully reap the potential benefits.

There are many farmers who adopted soil health practices, some of them decades ago, who report being able to reduce fertilizer and other input costs. A number of them offer detailed records and partial budget analyses that show they are farming more profitably because they are doing it cheaper while maintaining, and sometimes beating, yield averages. At the same time, studies can be found which draw less favorable financial pictures.

Challenges

An immediate increase in production costs is perhaps the biggest obstacle to adopting soil health practices because the benefits may not be realized for several years in some cases. Added to this is the difficulty of measuring and quantifying some benefits. For example, the intangible benefit of reduced erosion is not readily compared to production cost and thus often ignored.



Soil health benefits

- Increased nutrient cycling and availability
- Improved air and water movement
- Increased organic matter
- Increased water retention
- Improved filtering/buffering capacity
- Improved resistance to erosion



Transitioning to a new system can also be costly in terms of specialized equipment requirements. Further challenges may be encountered in the timing and coordination of new field operations. Finally, the differences between climate, soils, and cropping systems must be considered. Nevertheless, there is growing enthusiasm around the subject of soil health. Many believe the financial benefits to farmers may be sufficient to encourage greater adoption, but only if the initial investment can be supported with financial and technical assistance.

Enthusiasm is bolstered by the belief that soil health will deliver substantial public benefits, as was the case with the no-till movement. A recent request from the University of Nebraska for \$25 million in American Rescue Plan funds is further evidence of growing enthusiasm for improving soil health. Matched with private dollars, the University plans to use the funds to build a companion facility to the new USDA National Center for Resilient and Regenerative Agriculture.

Task Force Recommendations

Soil Health for Nebraska Wealth identifies strategies to encourage greater adoption that include the creation of a learning hub for promotion and research, peer to peer learning, and the recruitment and training of a new generation of soil health professionals and adopters. Many Task Force recommendations are focused on developing and disseminating technology. Increasing farmer awareness of the possible benefits is another key strategy.

The Task Force also set a goal of raising \$50 million from grants, private partnerships, and from carbon or environmental incentives programs. Inherent to this optimistic goal is the belief that an investment in soil health will also yield significant public benefits, that traditional avenues of support will remain, and new sources of funding will come forward, such as from foundations and corporate partners.

What Does the Future Hold?

Much of the new interest in soil health is generated by an awareness of its positive effect on soil composition. A healthy soil has more organic matter which, from a farmer's perspective, provides nutrients to and stores water for crops. Another perspective recognizes the carbon in organic matter and perceives healthy soils as a cost-effective way to sequester and store carbon.

Stakeholders recognize that healthy soil practices will never be widely adopted unless benefits exceed costs. If not, permanent outside investment and financial incentives will be needed. Many believe a soil health system, with some persistence, time, and learning, can become a net benefit and that short-term support may be all that is needed to increase adoption of soil health practices.

Some new supporters foresee successful carbon markets as a driver for agricultural innovation and as a new trend in farming for soil health. Carbon storage is an environmental service that private capital may be willing to purchase from farmers. Even now, there are organizations offering financial incentives for carbon capture through enhanced farming practices. One organization, with support from its foundation and corporate partners, is offering \$30 per acre a year for carbon storage. The future of the soil health initiative is uncertain, but when private and public goals and benefits align, optimism may be well justified.